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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—14TH YEAR. SYDNEY: SATURDAY, OCTOBER 29, 1927. No. 18.

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THE DYNAMICS OF THE FUNCTIONS OF THE HAND, WITH CONSIDERATIONS AS TO METHODS OF OBTAINING THE POSITION OF FUNCTION BY SPLINTS.[1]

By ALLEN B. KANAVEL, M.D., F.A.C.S.,
Professor of Surgery, North-Western University Medical School, Chicago.

Too often we as surgeons look upon the hand only from an anatomical standpoint. It is true that an adequate knowledge of the anatomy of the hand is essential and elsewhere[2] I have presented some studies of this subject, but the restoration of the hand to anatomical perfection is valueless without a proper conception of the physiology of the hand and how its functions may be preserved and restored. From the very beginning of the treatment of an infection or injury the preservation of function must be kept constantly in mind and adequate means employed to obviate its loss. To do this one must understand the function of the hand as a whole, as well as that of its individual units and how these functions are carried out and controlled.

The primary actions of the hand are five: (i) flexion of the fingers, (ii) extension of the fingers, (iii) adduction and abduction of the fingers from the mid-line of the hand, (iv) apposition of the thumb to the fingers and (v) rotation of the hand. Supplementary to this are flexion, extension, adduction and abduction of the wrist. When any one of these functions is lost, the usefulness of the hand is impaired. The surgeon who gives adequate care to his injured patient, must understand the basis of these various movements, so that he may anticipate and prevent their impairment. Flexion of the fingers is carried out by contraction of the flexor tendons of the forearm supplemented by action of the lumbrical muscles which aid in flexion of the proximal phalanx. The action reaches its maximum efficiency when the hand is dorsiflexed at the wrist. One needs but to attempt flexion with the hand in volar flexion to demonstrate this clinically. This has been emphasized by Sir Robert Jones and it is said by Steindler that three-fourths of the potential contractile power is lost when the hand moves from full extension to full flexion. Fortunately the hand is provided with exceptionally strong extensors, so that the wrist can be fixed in dorsiflexion and permit the flexors to act at the greatest advantage. Dorsiflexion increases the passive tension of the flexors and thus increases the potential power. This position also relaxes the tension of the extensors to the fingers and permits the passive tension of the flexors to hold the proximal phalanges partially flexed and thus in a favourable position for the exertion of maximum power, since little or no power is lost by direct pull of the phalanges against the metacarpals. The same holds true of the other phalanges. This position is further supported by the lumbricals.

In the contrary position—volar flexion of the wrist—the function of flexion of the fingers is much impaired, since such volar flexion in addition to the loss of flexor power through the factors already mentioned, contributes to the dorsiflexion of the proximal phalanx, due to passive tension in the extensors now absent in the flexors and lumbricals. The proximal phalanges are now in dorisflexion and the pull of the flexors is handicapped, the fulcrum at the joint working at a disadvantage, so that power is lost, pulling the phalanx against the head of the metacarpal bone rather than around it. This is the condition seen in the claw hand resulting from neglected tendon sheath infections and nerve injuries and is the condition that must be anticipated and avoided. The lumbricals have a real part in this action, since they tend to flex the proximal phalanges and extend the distal phalanges. If they are lost, the long flexors must take over their flexor function and this is done with difficulty, since they have no direct attachment to the proximal phalanges. Elsewhere I have drawn attention to the tendency of infection in the palm to extend along the lumbrical canals and thus to impair the lumbrical function in neglected cases and to favour the development of the claw hand.

From these observations, therefore, it follows that, in anticipation of the possibility of long continued immobilization following infection or injury, with its possible adhesions about joints and tendons and impairment of nerve and muscle function, the hand should be placed during treatment with the wrist dorsiflexed and the phalanges flexed. In addition to placing the fingers in the position for maximum function when acted upon by the flexors, this position also permits the flexor and lumbrical muscles to be in such a state of contraction that even though nerve function is impaired and fibrosis takes place in the muscles, a minimum of motion, sufficient to give some function, will be preserved. Moreover, flexed fingers with contracted muscles can be more easily restored to function by tension splinting and physiotherapy. Another advantage lies in the fact that with the fingers flexed the thumb with but little motion may be apposed to them, a function of vital importance in the usefulness of the hand.

Adduction and abduction of the fingers are carried out by the *interossei* with the aid of the flexors and the extensors. The extensors may to a certain degree substitute their action for that of the dorsal *interossei*, as is exemplified in ulnar paralysis in which with the fingers extended only the fifth finger loses abduction completely, since this motion is carried out by the abductor entirely, the other fingers being moved by the extensors. With the fingers flexed, however, the abductor function of the extensors is lost. A similar relation exists between the palmar *interossei* and the flexors. It follows, therefore, that since for the sake of flexion function we must keep the fingers flexed during treatment, care should be exercised to see that the fingers are kept separated midway between adduction and abduction.

The approximation of the thumb to the fingers is of equal importance to flexion power of the fingers and the greatest care should be taken to

[1] One of a series of post-graduate lectures delivered at Melbourne, August 23, 1927.
[2] "Infections of the Hand," Lea and Febiger, Philadelphia.

preserve this function. The dynamics of the thumb present a complicated study. The action of the *flexor pollicis longus* is influenced by the fact that the tension is deflected from a straight line action by passing around the *trapezium* at the wrist. With the thumb abducted this gives a maximum power to flexion of the distal phalanx. The short flexors dominate flexion of the proximal phalanx. The interrelation of these with the extensors holding the proximal phalanx in extension and the fulcrum action of the *trapezium* above mentioned give the long flexor a power of flexion of the distal phalanx out of all proportion to the flexion action of the distal phalanges of the fingers, an asset of great value in the prehensile power of the thumb to the finger. Practically all the thenar muscles take part in apposing the thumb to the finger. The short abductor and the short flexors initiate the movement followed by the *opponens*, the action being completed by the adductor. Thus the thumb rotates and brings its flexor surface in apposition with the flexor surface of the finger. The *opponens* lost, the flexors, short and long, and the adductor may singly or together carry out the action, though it is inadequately performed. The loss of the rotating function of the *opponens* is particularly disastrous. These observations emphasize the importance of maintaining the thumb in the abducted and rotated position during treatment for any lesion that may impair its usefulness, since in this position some function may be obtained even in extensive limitation of motion or loss of power.

The rotation of the hand (pronation and supination) is of great importance and especial care should be observed to retain this function. Take, for example, the simple act of eating; with rotation lost the patient cannot use the hand to carry food from the plate to his mouth, since for this act the fork must rotate through a considerable arc.

It is to be hoped that this short discussion of the dynamics of the hand has portrayed the position of maximum function and also the position in which the hand will carry out its various movements with the maximum efficiency, even though crippled by muscle, tendon, nerve or joint impairment. During treatment this is the position in which it should be placed and in the impaired hand it is to the establishment of this position that our remedial procedures should be directed.

To summarize, therefore, when in any lesions we fear impairment of use, the hand should be placed in "the position of function"—the wrist dorsiflexed, the fingers flexed at 45°, the fingers slightly separated, the thumb abducted from the hand and rotated so that the flexor surface of the thumb may come in apposition with the flexor surface of the distal phalanges of the fingers. In discussing various lesions means of establishing and maintaining this position will be described.

Sequelæ of Infections of the Hand.

Due to antecedent infection of the hand the most serious disabilities are not infrequently encountered. These may be adhesions about tendons, fibrous or osseous ankylosis of joints, impairment of nerves or blood supply or loss of bone and tendons. The simpler forms respond to physiotherapy and splinting, but there still remains a large percentage demanding surgical intervention. The severe types not uncommonly follow tendon sheath infections.

Time does not permit us to consider in detail the pathological changes following infections originating in the tendon sheaths.

The glossy skin, the impairment of tactile sensation, the fingers extended with the thumb held rigidly extended to the side of the hand, the destruction of the tendons and ankylosis of joints make a picture familiar to us all.

With this picture of the grave consequences of infection before us our problem should be divided into two parts: First, the prevention of these sequelæ and secondly, their treatment when once the condition has been established. In previous contributions attention has been drawn to the methods of treatment advisable in lymphangitis, fascial space abscesses and tendon sheath infections. It has also been emphasized that early physiotherapy should be instituted.

During the course of treatment following acute infections as well as accompanying the treatments instituted to restore function in the seriously disabled, we have made an extensive use of tension splints and it is our belief that they are of equal importance with physiotherapy. These tension splints have been designed and used with the purpose, first, of holding a hand in the "position of function" during the treatment of the acute process and second, of attempting to draw the fingers and hand into the "position of function" when the loss of function has taken place incident to the hand not having been treated and maintained in the "position of function."

The splints must be comfortable and removable by the patient or the physiotherapist for treatment and so constructed as to be applied with ease by the patient. The tension must be continuous and not too great; therefore springs or elastic tension should be used and it is surprising what such gentle continuous tension will do when applied intelligently. While these splints must be constructed individually for each patient, certain general principles underlie their application. We have found it advisable to make these splints ourselves rather than send them to manufacturing houses and what the splints lack in neatness, is compensated for by the intelligent application to the need of each patient. The conditions in which they are used, may be divided into general groups for the sake of clearness in discussion as to the method of construction of the splints: (i) Contraction of the hand with the fingers over extended at the proximal phalanx and the distal and middle phalanges flexed; (ii) contraction with the fingers held extended in the normal position; (iii) contraction with the phalanges all flexed; (iv) contraction with the thumb held at the side of the hand; (v) contraction with the hand volar flexed and (vi) fibrous ankylosis of any or all joints. It is realized that any or all of these contractures may

be present in an individual case, yet to overcome any one of these types of contraction certain principles in application of the splints should be observed and it is the combination of these principles that builds up the splint applicable to the particular patient. The line of attack should be intelligently directed toward bringing the hand and its members into the "position of function," stretching of adhesions and mobilizing joints. Therefore, we first attack the improper position at the wrist and build our splint in such a manner as to produce dorsiflexion at the wrist. On this basic splint we apply the arms to which are attached the springs or elastic that extend or flex the fingers or thumb and stretch the adhesions about the joint, as may be directed.

The materials used in making splints are extremely simple; we secure hard aluminium about three millimetres in thickness, of such strength that it cannot be bent easily with the fingers and can stand a fair tension when made into arms; leather is secured for straps, piano wire springs,[1] rivets, elastic, buckles, piano felt and the simple tools necessary to cut the aluminium *et cetera*. With these materials at hand we are ready to make our splint. The splint devised to produce dorsiflexion is cut from the aluminium sheet in such a manner as to extend on the forearm from just below the elbow up to the distal flexion crease in the palm, the end at the palm being rolled so as to produce a cylinder on the upper side of which we rest the fingers, and below we rest the thumb. This cylinder extends to the radial side of the splint for a distance of about 2·5 centimetres (one inch). In the palm the splint is cut out opposite the thenar eminence, so that the thumb can be brought toward the ulnar side of the hand. A projection is attached to the ulnar side of the splint at the base of the hand, so that there will be no tendency for the splint to slip toward the radial side. Piano felt covers the splint; it is cocked up at the hand, straps are attached on the forearm part and an elastic or spring attachment is carried from the thumb to the ulnar side of the splint, so as to draw the thumb into the "position of function." From day to day the splint is bent more and more at the wrist so as to produce more dorsiflexion of the hand and as the hand moves towards the "position of flexion," the thumb attachment is shortened so as to keep up the tension. The construction of this splint is better seen from the drawings and the photograph in Figures I, II and III. It is designed primarily to produce the cock-up of the hand and to draw the hand into the "position of function" and is used during the time that the patient is undergoing treatment subsequent to the opening of the tendon sheaths in the hand and also in old cases to overcome malposition of the wrist and thumb. We have used various types of splints to produce the same effect; a dorsal splint, curved so as to give the cock-up effect with an extension down over the fingers at an angle of 90°; the splint is fixed to the arm and a wide rubber bandage passes round the palm of the hand and the dorsum of the splint in an endeavour to pull the hand up into the splint, thus flexing the fingers and dorsiflexing the hand. For ordinary purposes, however, the first splint described is the most satisfactory in our hands.

To this palmar cock-up splint or some of its modifications are attached the various arms of U-shaped extensions by which the fingers and the thumb are extended or flexed as may be necessary. Where we have the fingers extended and all the phalanges in the normal position, we more commonly attach a U-shaped piece of aluminium along the under surface of the volar splint extending down about 7·5 centimetres (three inches), the position of this bar being varied with the amount of extension of the fingers. If the fingers are fully extended, the bar must rest

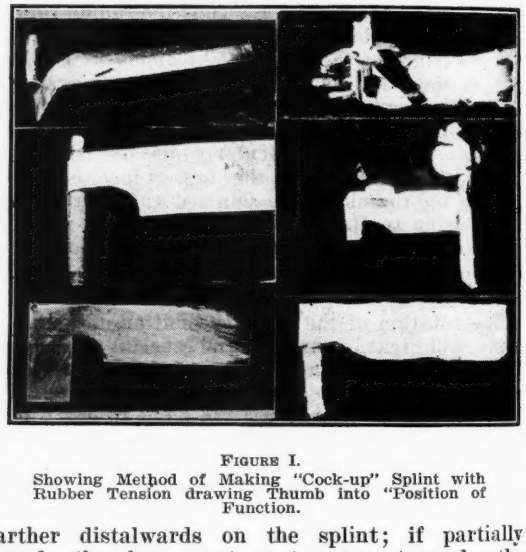

Figure I.
Showing Method of Making "Cock-up" Splint with Rubber Tension drawing Thumb into "Position of Function."

farther distalwards on the splint; if partially flexed, the bar must rest more towards the elbow. To this bar are fixed straps with buckles. Loops of leather pass around the individual fingers and are attached to springs with a strap with holes in it for the attachment to the buckle on the other end. This spring attachment, being buckled to the bar, permits increasing tension on the spring as the fingers progress toward more complete flexion. The strap around the finger is placed over the proximal phalanx or the middle as may be desired. Where we have much difficulty with the distal phalanx, we frequently attach the spring by means of gauze and Sinclair glue to the distal phalanx. A simple method of producing the same result is to place a glove on the hand; to the dorsum of the fingers of this glove straps are sewn which may be buckled to springs attached at the wrist. This permits fairly satisfactory flexion of all the phalanges and except in extreme cases is a very satisfactory modification.

Where there is overextension at the proximal phalanx with moderate extension of the second and third phalanges, we may be able to overcome the

[1] For light tension oil tempered steel wire 25, 7/32 outside diameter; for moderate tension oil tempered steel wire 20, 9/16 outside diameter, is used.

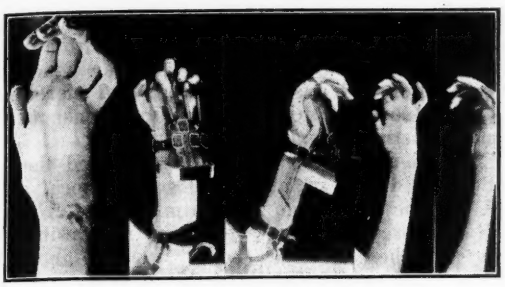

FIGURE II.
Showing Application of Flexor Splint with Spring Tension to produce Flexion of Fingers.

hyperextension by the application of the same splint, but with the attached bar brought still further distalwards on the splint, gradually moving it back as we bring the proximal phalanx into flexion. Here we are accustomed to use the method described by Dickson, which consists essentially of the application of a plaster cast extending from the fingers up to the end for about 12·5 centimetres (five inches) beyond the elbow, the elbow being flexed at a right angle, the hand flexed dorsalwards as far as possible. The splint is made especially strong on the dorsal surface of the hand and at the wrist and the palmar portion of the splint is cut away proximalward to beyond the distal flexion crease, so as to permit the fingers to flex as we secure mobility. When the splint is thoroughly dry, small blocks of piano felt are forced between the splint and the proximal phalanges and the amount of piano felt is increased day by day so as to force the fingers downward. In a majority of cases this procedure is very satisfactory. The surgeon should remember, however, that these hands have a very poor circulation and poor nerve supply and that blisters and pressure necrosis are much more prone to occur than in the normal hand. Therefore, such complications should be carefully guarded against. The fingers being brought down to and flexed somewhat

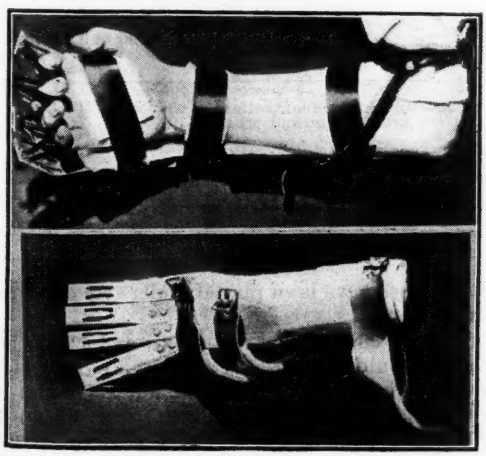

FIGURE III.
Showing Application of Dorsal Splint with Rubber Elastic Tension to Produce Extension of Fingers.

beyond the straight line, we then can attach to the plaster cast long springs with leather straps over the dorsum of each finger and buckled above, as already described, so as to produce spring extension attached to the splint on the forearm. After fair mobility is secured, the cast is replaced by some of the devices mentioned above. In case none of these methods is sufficient to secure mobility, the surgeon must resort to a reaction of the joints. A more complete description of this splint and others may be found in an article in *The Journal of the American Medical Association*, Volume LXXXIII, December 20, 1924, page 1986.

Where the fingers are flexed to a moderate degree or where the distal and middle fingers are extensively flexed with only moderate flexion of the proximal phalanx, we are accustomed to apply the aluminium splint to the dorsal surface of the forearm and the back of the hand with the cock-up or not, as the condition of the wrist may demand. Extending beyond the end of this forearm splint which is strapped to the hand and forearm, aluminium arms are riveted in such a manner as to extend over the dorsum of each finger for about 2·5 centimetres (an inch) beyond the ends of the fingers. The arms are separated somewhat so as to produce abduction of the fingers as well as extension. The fingers are then attached to the arms, either by the leather loops around the fingers with a spring attachment or by elastic bands. The latter is a somewhat simpler method of procedure, since the aluminium arms can be bent dorsalwards from day to day, as may be necessary to maintain constant elastic tension on the elastic loop thrown around the finger. It is better to sew the elastic bands to buckles so that the patient can tighten them at will.

If the distal and middle phalanges are flexed and the proximal extended, the extension must be so attached as to pull in the line of the forearm instead of dorsalward. Here the U-shaped arm can be attached to the volar splint passing some five centimetres (two inches) beyond the ends of the fingers or we may use a dorsal splint and attach arms going over each of the fingers out to and beyond the end of the fingers for some 7·5 centimetres (three inches) and bent at the ends so that the same line of tension can be secured. In the former instance we may use springs or elastic tension attached to each finger in the same manner as already described. It should be emphasized that the line of tension in the direction of the forearm is necessary not only because of the position of the middle and distal phalanges which make this position of attachment necessary for advantageous pull, but also it is necessary because of the fact that if the tension pulls dorsalwards, there is a tendency to overextend the proximal phalanges, tending to produce paresis of the lumbricals and *interossei*.

Where the thumb is not in the "position of function," we may attach elastic or spring tension to the splint in certain instances where the malposition of the thumb permits it. In most cases, however, it will be necessary to rivet an arm on to the

aluminium splint, this arm extending out 7·5 or 10·0 centimetres (five or six inches) from the splint and bent sometimes on the radial side, sometimes on the ulnar side, as the malposition of the thumb may indicate.

Our desire is, first, to place the arm in such a position that when the tension is exerted, it will yield to pull the thumb away from the palm, thus stretching the adhesions that may be present holding the thumb in the malposition and to bring the thumb ultimately into the "position of function" with the flexor surface of the thumb opposite the flexor surface of the index finger and, secondly, to produce mobility in the thumb. It is evident, therefore, that it may be necessary to apply an arm in such a manner as first to produce radial abduction of the thumb and then after the stretching has occurred, to place the splints on the ulnar side so as to draw the thumb away from the palm and toward the ulnar side.

To summarize, therefore, aluminium splints are fitted to the forearm either on the flexor or dorsal surface to produce the cock-up position or mobility in the wrist joint and to this arms are attached in various directions to produce mobility in the joints and to bring the fingers into the "position of function" and to stretch the adhesions in such a manner as to permit free motion. It is evident that each patient presents an individual problem that stimulates the imagination of the surgeon and sustains his interest. Certain precautions are necessary. Owing to the poor trophic condition the surgeon should always be on the lookout for pressure blisters or necrosis. There is also a tendency for the splint to slip distalwards under certain types of tension, namely, those in which the tension is in the line of the forearm. In this instance we attach straps on either side of the splint to a broad strap that is buckled about the upper arm a few inches above the elbow joint, ordinarily lining it with piano felt so as to equalize the pressure on the arm. These splints may be kept on continuously or they may be taken off at any time for treatment. It is not uncommon for us after a few weeks to have the patient wear them at night while he continues his ordinary work during the day with his hand free. In most patients such splint must be worn for at least a part of the time for from one to three months and the patient should understand the principles of its application so that he may adjust it himself from time to time.

If splinting and physiotherapy do not secure satisfactory results, operative measures must be instituted. These will be considered elsewhere.

SOME PHYSICAL CAUSES OF JUVENILE DELINQUENCY.

By Guy P. U. Prior, M.R.C.S. (England), L.R.C.P. (London),
Medical Superintendent, Mental Hospital, Parramatta, New South Wales.

Physical causes, more especially in the form of some brain lesion or endocrine disorder, will bring about a complete alteration in character and change the subject from a bright normal child into a moral derelict without any sense of truth or honour, a liar, a thief and a sexual pervert and more than one of these character changes may happen to the same unfortunate individual.

No sadder catastrophe can be conceived than to find a child full of promise lose all moral sense and become a plague unto himself and a never ending source of sorrow to those responsible for him and these changes being brought about by causes over which neither the sufferer nor his parents have any control.

The better known physical causes that may be responsible for these tragedies are:

1. Injury to the head.

2. Disease, more especially *encephalitis lethargica*, possibly influenza.

3. Glandular changes and perhaps puberty by means of glandular changes.

During ten years there were admitted into Rydalmere Mental Hospital 235 patients under twenty years of age suffering from various forms of juvenile insanities, but the majority were of the congenitally deficient class. Among them were 48 children or young adults, the chief reason for whose admission was that they were delinquents or were uncontrollable by parents or guardians. Their ages ranged from eight years to twenty years, the average being sixteen.

Not all these have a known or recognizable physical cause, but to submit the cases to analysis will be of interest. The faults or irregularities which led to their being admitted into a mental hospital vary from being unmanageable, incorrigible, wandering from home and robbing orchards, to long series of persistent crimes and convictions and include sexual faults and irregularities.

The faults may be divided into several groups as shown in the accompanying table.

Table Showing Nature of Fault Among Forty-Eight Children.

Nature of Fault.	Number of Males.	Number of Females.
Unmanageable and uncontrollable	8	12
Wandering from home and truant	9	6
Untruthful	4	4
Robbing and thieving	13	4
Sexual irregularities	4	8
Sexual perversion	5	..
Making false charges of sexual nature	..	3
Drinking	1	..
Arson	1	1

Some cases have been placed under two or more of these headings.

Of the 48 children 26 are males and 22 females. Most, as would be expected from the nature of the hospital, are of low intelligence, but six males had an intelligence quotient varying from 98 to 110 and three females an intelligence quotient varying from 87·3 to 98·5 and one over 100. Among those with a high intelligence quotient are those with post-encephalitic conditions and the moral imbeciles.

The condition of these juvenile delinquents may be divided into:

1. Moral imbecility—a congenital condition, mostly not of physical origin.

2. Moral insanity—an acquired condition, mostly of physical origin, but may be psychological.

3. Imbecility with faulty tendencies—these tendencies being mostly of suggestive or environmental origin.

The moral imbeciles are usually of normal or high intelligence, but have little or no moral sense, cannot go straight and cannot be taught to do so and cannot learn that "the way of the transgressor is hard." Tredgold states that these have intelligence, but lack wisdom. Among the 48 patients one boy and one girl might be called moral imbeciles.

The boy, a lad of fifteen years of age on admission, the son of a schoolmaster, had commenced his career of crime twenty months previously and during that time had been arrested twenty times, mostly for "breaking and entering." He would take things of little value which he would either throw or give away. In hospital he made no improvement, escaped several times, once stealing a bicycle as the means and once endeavoured to break into a nearby railway station office. He was eventually removed by friends and last heard of as being in a Queensland gaol.

The girl was also aged fifteen years, was the illegitimate daughter of people of good social standing and her intelligence quotient was 87·3. She would commit all sorts of thieving and would go to large drapery establishments and order expensive goods in other people's names. The goods obtained would be turned to little use and often could not be traced. Except for a slightly enlarged thyreoid gland her physical signs and conformation were normal.

Three boys and two girls hardly fit into any of the above classifications, in that, being delinquents of fair intelligence with intelligence quotient of 90 and above, they all greatly improved, three being discharged and taking their places again in the world and two becoming quite trustworthy members of a mental hospital population.

D.T. was an epileptic lad of bad inheritance who had been brought up in reformatories, from which he truanted and was generally incorrigible. By means of alternate suppression and encouragement he became an industrious worker, quite trustworthy and could be allowed out by himself. He could not be taught to control his language, otherwise his behaviour was all that could be desired.

T.F., a boy of fourteen years, would rob mail bags.

X., aged sixteen years, a member of a State reformatory, was the author of the most obscene letters imaginable. X., although with an intelligence quotient of 98·6, was evidently influenced entirely by his more evil-minded companions, for from the day of his entering the hospital his manner and conduct were perfectly correct and he proved himself entirely trustworthy.

Of the two girls both were State children. One stole small sums of money from an employer who swindled her, and the other gave way to uncontrollable and violent tempers. They both recovered and left the hospital.

None of these five had been happy in their surroundings and probably psychological causes played the chief part in the production of their delinquency which may be taken as a protest against their uncongenial fate.

Seven cases were of organic origin and affected six lads and one young woman. Their characters were completely ruined as the result of disease or accident.

P.G.'s condition was the result of a fractured skull. When eight years of age, he was knocked down by a motor car. He was unconscious for fourteen days and later had epileptiform convulsions. Previous to the accident he had been a good scholar, learned quickly and had a drawing ability above the average. Afterwards he forgot all the knowledge that he had acquired, and could not be taught anything new. He lost all moral sense, became untruthful, cruel to animals, a homosexual pervert, active and passive, a pickpocket and a thief; this with the most engaging manner and cherub-like appearance. An X ray picture of the skull revealed no definite abnormality, but he probably received some damage in the neighbourhood of his pituitary gland, for his sexual development was out of all proportion to his age; later he exhibited the physical signs of apituitarism and athyreoidism.

One female and three males had suffered from encephalitis and the condition of two males is attributed to influenza; they may have been unrecognized encephalitics. Three of these five lads had an intelligence quotient of over 100. All before their illnesses were doing well, one had won a scholarship; he became a pronounced sexual pervert. None of these knew the meaning of truth.

H.A., aged twelve years, would quarrel and fight with anything and had attacked and threatened to kill his younger brother and sister.

J.D. was aged nine years. The encephalitis had left him partly paralysed in the left arm and leg, violent tempered, vicious and immoral.

Among those with supposed post-influenzal conditions G.T. manifested the change when he was eleven years of age, five years before admission. He would wander from home, steal and had been charged with "breaking and entering."

J.E. was aged sixteen years. His delinquencies commenced six months after influenza. He also had an occasional epileptiform attack and would sham one whenever he got into trouble. There was no villainy of which this boy was not capable, and he, as well as some of the post-encephalitics, was possessed of a pleasing and plausible manner. He after many years of "kicking against the pricks" has, we believe, at last learned that it would be to his own interest to go straight and is doing his best to conform his conduct accordingly.

The girl was aged nineteen years at the time of her encephalitis and had commenced a university course. She had always been a "difficult child" and the encephalitis had rendered her quite impossible and quite devoid of moral sense or obligations.

None of these patients, with the possible exception of J.E., has shown any sign of improvement and probably will not improve.

The next class is a wider and more indefinite one, that in which the delinquency is associated with glandular changes and with puberty. Langdon Brown writes:

Hypertrophy of the anterior lobe of the pituitary is apt to be followed by degeneration of the gland and the patient is apt to develop moral and intellectual inferiority and to suffer from compulsions and obsessions and the lack of inhibitions. Such individuals are pathological liars, with little or no initiative or conscience. As children they lie and steal.(3)

If this statement of Langdon Brown can be accepted, we would suggest that at puberty there may be a temporary pituitary dystrophy, followed by a temporary tendency to commit faults.

To digress, sexual morals, as shown by strength of desire and amount of control, can be profoundly influenced by the endocrine glands, more especially by the thyreoid, anterior pituitary, suprarenals and gonads and perhaps by the prostate and pineal.

The ruination of blameless characters brought about by the morbid effect of an enlarged prostate is recognized. We believe that an early ovarian tumour will so stimulate the gland as to produce an excess of *libido* and may be the primary cause of a moral lapse. Growths of the anterior pituitary and suprarenal will stimulate genital growth and also genital function. The changes are easily observed, so why should not less gross lesions of the endocrine system produce less gross changes of character?

Eight boys and eight girls showed in their physical make-up some glandular disturbance. Three boys were effeminate in their general build and appearance and without secondary sex characters. One had put on several inches in growth in twelve months and had an enlarged thyreoid. Another was of eunuchoid make-up with undeveloped genitalia and enlarged mammary glands. A third was much undeveloped, at fifteen years of age he weighed forty kilograms (six stone five pounds) and his thyreoid and thymus glands were enlarged. B. was of *plus* anterior pituitary type and another, aged nineteen years, had no hair growth on face or body.

Of their faults, three had been charged with sexual offences, three with wandering or wandering and thieving and one with thieving. Five of these were able to be discharged.

Of the eight girls, one was of subthyreoid type with an enlarged thyreoid gland. Four suffered from menstrual irregularities. Three were of the hyper-anterior-pituitary type and one with hypo-posterior-pituitary symptoms.

This last patient was quite uncontrollable at home, would quarrel and fight with other children, her language and habits were depraved and she would wander from home. After two years' stormy passage she made a complete recovery and became a very decent person. The girl with hypothyreoid symptoms would wander from home and be away for days and occasionally steal. After several times in and out of hospital she had both ovaries which were cystic, and both tubes which were inflamed, removed. About twelve months after this she was allowed out on leave and she brought false charges of criminal assault against five men.

One girl with excessive menstruation brought false charges of a sexual nature against her father. She recovered and was discharged. Another, at the time of puberty, completely ran amok; she also recovered.

B.A., a girl aged seventeen years, a State child, had uncontrollable temper and in a fit of rage attacked with a garden fork a teacher of whom she was fond. She learned to control herself and was ultimately able to leave.

The balance, nineteen females and eight males, are imbeciles. Their intelligence quotients vary from 17·7 to 72. Among the girls are six who wander from home and lead irregular sexual lives. Three are uncontrollable and one of these, aged fifteen years, an epileptic with an intelligence quotient of 63·5, also steals and has made one attempt at suicide. One of either sex is a Mongolian; the girl with an intelligence quotient of 17·7, is uncontrollable; the boy with an intelligence quotient of 28·7, was charged with stealing money. In hospital he proved particularly trustworthy. One girl, aged eighteen, had an intelligence quotient of 41·5. She had two or three illegitimate children, for which she blamed her uncles and cousins. The boys were mostly wanderers or uncontrollable; three were in addition thieves. One was homosexual, his intelligence quotient was 33·2 and three others had been charged with sexual offences.

Of the past histories of the series, eight or 16% gave an hereditary history of insanity, alcohol or epilepsy in near relatives. Five or 10% are known to be illegitimate. Five were epileptic. Four or 8% give a positive response to the Wassermann test. Eleven males and seven females had been previously resident in some State home or reformatory. Many of them are "State children" and although perhaps they may not have been badly treated, have been in environments unsuited to their own particular needs. They are weak minded and are easily led astray and influenced by those with more intelligence and a greater tendency to crime than themselves. This applies equally to sexual faults and other forms of delinquency and we think that imbeciles have a lesser tendency to commit faults than more normal persons, but, having little power of resistance, are made a cat's paw of those more wicked than themselves and they shoulder a great deal of blame that does not justly belong to them. These patients, as judged by our series, once removed from irritating surroundings and evil influences, become well behaved and orderly and a fair percentage with care and guidance are able to become useful citizens. The vast majority of the remainder become happy, useful and often trustworthy members of an asylum community. Nine of the girls and seven of the boys have after readjustment been able to leave the hospital and are believed to be following correct and useful lives. Five girls and seven boys who are not able to leave the hospital, mostly of the lower grades of intelligence, have under supervision proved useful and industrious workers and quite to be trusted within their limited sphere.

Therefore, twenty-eight of the forty-eight juvenile sinners have, when removed from irritating or evil influences, proved themselves able to behave and conduct themselves well.

The fact that illness, accident, glandular change and puberty will profoundly alter character and behaviour, demands the greatest charity in dealing with those whose shortcomings may be due entirely to physical causes and who are therefore to be very much more pitied than blamed. The importance of this is not generally recognized. A medical witness recently before an English court stated that an accused person was suffering from "moral insanity." The judge had not heard the expression before and declined to accept the view.[2]

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(1) Langdon Brown: "Minor Endocrine Disturbance," *The British Medical Journal*, December 8, 1923, page 1073.
(2) *Journal of Mental Science*, January, 1927, page 115.

RECONSTRUCTION OF SMALLER FACIAL DEFECTS AND LESIONS.

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Sydney.

It does not always follow because a defect is small that its repair or reconstruction is simple; the reverse is sometimes the case. Elsewhere[1] I have described reconstruction methods which may suitably be employed in gross facial lesions, but the smaller lesions and defects are important, not only because they are commoner, but because they often represent a stage in which a stitch in time saves nine; also the disfigurement may have a most unfortunate psychological effect on the patient, especially during adolescence, producing an inferiority complex whose ramifications may be both wide and lasting to a surprising degree.

It has been interesting to observe on several occasions to what extent any alteration in the shape or contour of a patient's nose, for instance, will affect his or her outlook on life. Not only may it totally wreck any social pleasures, but may seriously interfere with the patient's attention to his business or profession. It may not appear to be a very serious disability to his friends and they often endeavour to persuade him to take a less serious view of the defect, usually unsuccessfully; such efforts may even have a worse result by discouraging the patient from any mention of his sensitiveness, thus developing a well buried, but none the less active, inferiority complex which will taint all his thoughts and actions.

These things are neither imaginary nor trivial. I have seen cases almost amounting to tragedies—

Figure I.
Depressed Bridge of Nose following Septic Infection of Septum.

Figure II.
Restoration of Bridge of Nose by Cartilage Graft.

the lives of able men and sweet dispositioned women or girls utterly spoiled by some small physical defect which in their opinion renders them so different from their fellows as to be an object of notice, comment, compassion or even repulsion. The condition which I started calling a "nasal neurosis" some time ago, is not confined to girls and effeminate young men, as might be thought, but often affects the strongest physically and mentally developed men. For instance, a healthy, vigorous young man had spent (for him) an extraordinary amount of time and money on the treatment of his nose which was certainly slightly abnormal. When I suggested to him that he should be content with his nose, I saw first that same distressful look of fear in his eyes that comes when one has to tell patients the disagreeable truth, and then they filled with tears. It was obvious how deep seated was his trouble and that it would be necessary to make his nose like other folks' noses if he were to become normal. In due course this was done and after some months I saw the young man's superior officer who told me that I could have no idea what a difference it had made to young so and so getting his nose put right—it had "made a different chap of him altogether." I used to treat such cases lightly—perhaps suggest to the patient that no treatment was necessary—but after seeing more of them I am convinced that this "nasal neurosis" is a distinct clinical entity which requires to be taken seriously.

Case I.

One type of this kind of deformity is that produced by a falling in of the bridge of the nose after traumatism and infection of the septum. Such a case is shown in Figure I. The correction of this deformity is undoubtedly best carried out by means of a cartilage graft taken from the patient's eighth or ninth rib. Great care in aseptic technique is

Figure III.
Congenital Deformity of Nose—possibly produced by Forceps at Birth.

necessary, as costal cartilage seems to be extremely vulnerable to low degrees of sepsis. Infection which is not sufficient to cause suppuration, will cause a cartilage graft to deliquesce. In fact, I have come to think that the resistance of a cartilage graft is practically nil. In this respect it resembles fat grafts, but is in marked contrast to skin and muscle grafts, whilst bone seems to occupy a mid-way position. The cartilage graft is inserted from either the upper or lower part of the nose according to indications and takes about ten days to become attached, when, if complete asepsis has been maintained, it is impossible to remove it without open dissection. Figure II shows the result of such a graft and it will be noticed how completely the whole character of the face has been altered by restoring the normal contour to the nose. Paraffin wax was formerly used by surgeons for this purpose and still is by "beauty doctors," but I believe it is quite unsurgical —it is a foreign body and it is liable to change its

Figure IV.
Reconstruction by Shortening Septum, Enlarging Nares and Insertion of Cartilage Graft.

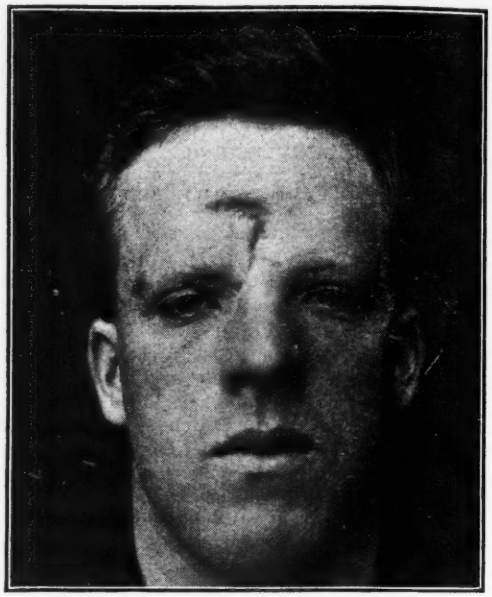

Figure V.
Depressed Scar of Forehead Following an Operation.

shape and irritate the tissues and moreover cannot be adapted as can cartilage in the first place to the exact shape indicated.

Case II.

Case II is a congenital type of nose deformity, produced, I think, probably by the pressure of the forceps during delivery. It requires treatment in order to obviate a very distressing appearance, especially in girls. Not only so, but the orifices of the nares are apt to be narrowed or the septum sharply deflected at the lower end. Figure III

Figure VI.
Obliteration of the Scar and Depression by Cartilage Grafting.

FIGURE VII.
Ectropion of Lower Lid Following a Burn and Complete Loss of Lower Lid.

shows such a case. Correction may be accomplished in various ways, but possibly the simplest is to shorten the septal cartilage, elongate the nares forwards and insert a graft of costal cartilage as a strut forwards. Figure IV shows the result of such an operation and even at this comparatively early age the pleasure of the child in having a nose more nearly resembling that of other children was very noticeable.

Case III.

Figure V shows an ugly depressed scar on the forehead resulting from an operation for obliteration of the frontal sinus. This was a source of considerable worry to the young man and was treated by excision of the scar and filling in the remains of the frontal sinus with cartilage grafts. In these cases it is necessary to allow some months to elapse after suppuration has ceased in order to avoid latent sepsis causing an infection of the graft. Figure VI shows the elimination of this defect.

Case IV.

Case IV is an example of ectropion of the lower lid. This perhaps can hardly be classed as a small defect, since it was practically a complete ectropion,

FIGURE VIII.
Reconstruction of Lower Lid by Stirrup Flap from Forehead (new method).

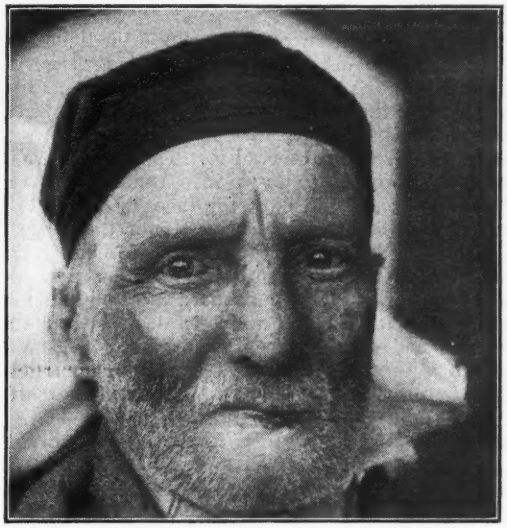

FIGURE IX.
Recurrent Epithelioma of Lower Lip.

but the actual area of tissue involved even in a complete ectropion is small; yet I have found them, until this case, very difficult to deal with in order to get a really satisfactory result. I have used epithelial inlays, free grafts, pedicle grafts and sliding plastic operations. The first of these is suitable in ectropion of small degree only; if used in cases of greater degree, it leaves a very noticeable broad furrow of whitish skin which is very little better than the original condition. The free grafts are very un-

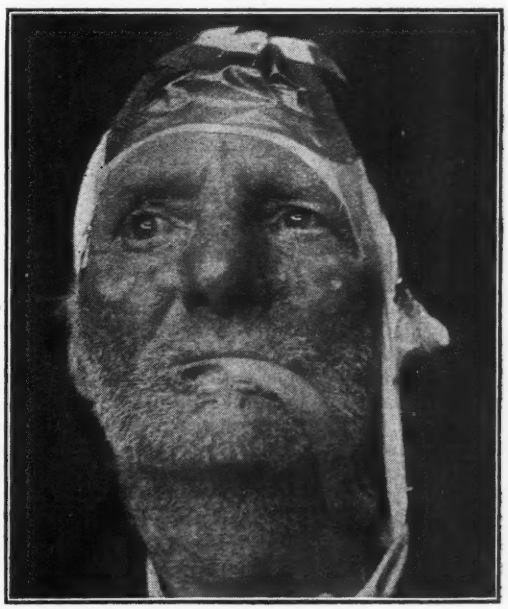

FIGURE X.
Excision of Lower Lip and Reconstruction by Means of Tube Graft from Neck.

certain in taking in this position and are also permanently light in colour. Single pedicle grafts are difficult to obtain in sufficient length without impairing their vitality and sliding operations introduce always the factor of tension which is objectionable as limiting function. Figure VII shows the complete ectropion referred to. The patient was an epileptic who fell forward into the fire during a fit and sustained burns of the face, neck and chest. The method employed to reconstruct the lower lid was that of a stirrup flap from the forehead. This makes excellent tissue and is very viable. The space in the forehead is filled in with a whole thickness skin graft and in ten to fourteen days both pedicles are returned with the result shown in Figure VIII. I do not think this method of lid reconstruction has been previously described. I showed the patient at the Congress in Dunedin in February last, but the appearance has since improved considerably.

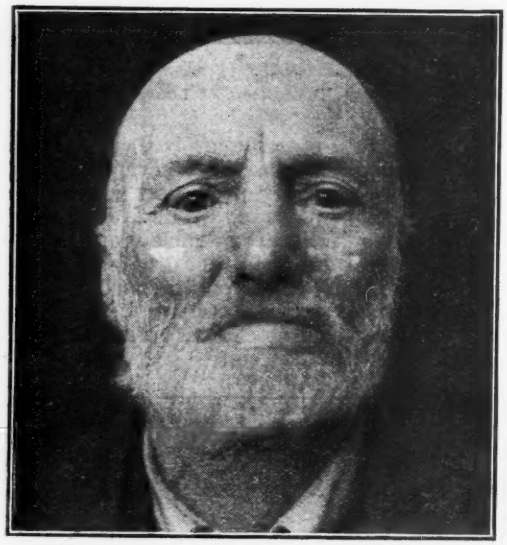

Figure XI.
New Lower Lip Grafted. The illustration cannot convey the very natural pink colour of the lip exactly simulating the normal mucous membrane.

Case V.

Case V is an example of epithelioma of the lower lip in an old man, seventy-four years of age. This was a recurrent case of a somewhat unusual type in that it extended in a rather superficial manner along two-thirds of the lower lip. Radium had been unsuccessfully tried for several months (see Figure IX). The lip was excised under local anæsthesia and reconstruction effected some weeks later by means of a tube graft from the neck in the manner which I described some years ago (see Figure X). The interesting problem in this case was the atrophic nature of the skin of the neck which made the vitality of the tube look very problematical. With a little extra care, however, during and after the operation, including the employment of intermittent radiant heat, the tube did perfectly well and it was

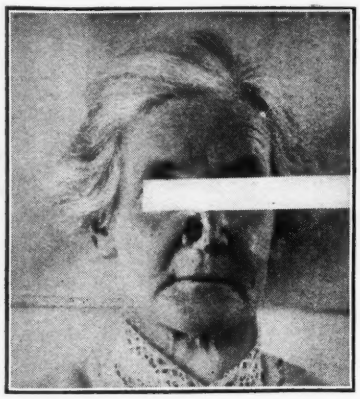

Figure XII.
Perforating Rodent Ulcer of right *Ala Nasi*. The illustration shows the condition after excision by endothermy.

most interesting to note the change in the character of the skin from thin flabby wrinkled neck skin to smooth full pink lip skin when grafted, so that it exactly matched his upper lip (see Figure XI). These changes to which I have previously called attention, seem to be providential phenomena in favour of the plastic surgeon.

Case VI.

Case VI is an example of rodent ulcer of the nose, not a large one and only of three years' standing, but it had perforated the right ala and was extending upwards. The lower half of the right side of the nose was removed by endothermy (see Figure XII). Reconstruction was effected by means of a tube graft from the neck and chest. The patient had a large goître for which she declined operation, and this complicated matters a little, but never-

Figure XIII.
Reconstruction of *Ala Nasi* by Tube Graft from Neck, Inner Surface being Lined with Pressure Thiersch Graft.

Figure XIV.
Scarring and Tattooing of Face following a Fall on Asphalt.

theless the graft did perfectly well, as may be seen from the photograph shown in Figure XIII. The intranasal surface of the flap was lined with a Thiersch graft on stent under light pressure. The whole of the operations involved (four stages) were done under local anæsthesia.

Case VII.

Case VII is an example of scarring and tattooing of the face. A girl, aged sixteen years, fell from her bicycle on to an asphalt path and not only cut her face badly, but the scars were after healing found to be deeply tattooed with asphalt (see Figure XIV). The scars on the forehead and lip were

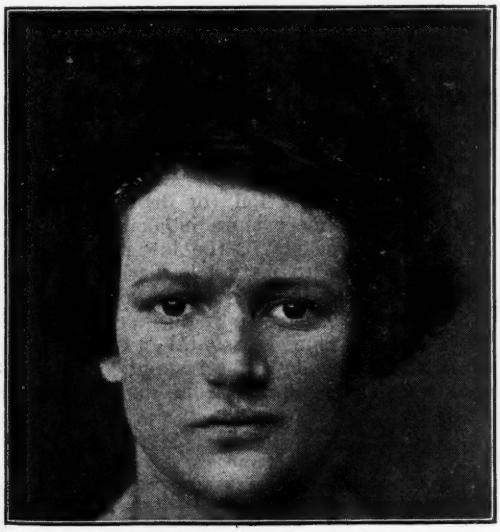

Figure XV.
Scars Removed by Excision and whole thickness Skin Grafting under Pressure.

Figure XVI.
Harelip operated on in Infancy, Showing Vertical Contraction along Scar Line.

excised and one area was skin grafted. The scarred skin of the upper part of the nose was removed completely and replaced by a free whole-thickness pressure-skin-graft. The result is seen in Figure XV. Here also, as might be expected, the psychological effect was quite pronounced.

Case VIII.

Case VIII is an example of harelip. The correction of this deformity has usually to be done in babies, but there are certain cases in which it is necessary in adolescents—firstly in those who have

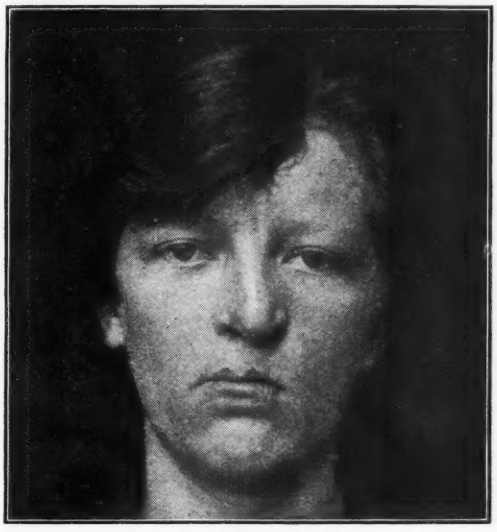

Figure XVII.
Reconstruction of Lip shown in Figure XVI by Triangular Flap Method.

FIGURE XVIII.
Very Wide Unilateral Harelip and Cleft Palate.

missed operation completely in infancy (a rapidly decreasing quantity) and secondly in those for whom too simple an operation has been done, leading to a considerable shrinking in a vertical direction along the line of cleft. Such a case is shown in Figures XVI and XVII. This imperfect result may or may not have been the fault of the surgeon. Occasionally in very weak and underweight cleft palate and harelip babies who are going down hill and are obviously unfit for a palate operation, I do a quick lip operation, namely a nearly vertical incision on each side of the lip cleft, three sutures and some strapping, taking little more than five minutes. The effect on the nutrition of the baby is immediate and permanent and enables a palate operation to be done in a fortnight or three weeks. Such a case is illustrated in Figures XVIII and XIX.

The lip line, of course, will subsequently be quite unsatisfactory and it is necessary for the child to be brought back later on for further operation; but

FIGURE XIX.
Same Baby as in Figure XVIII Twelve Months Later.

parents may be careless in this respect and omit to do so, until the child is old enough to request something being done. The most satisfactory method I have found of dealing with such cases is by cutting two small triangular flaps one on each side, the base of one being downward and the base of the other upward. The triangles are then interlocked and so sutured. This has the effect, if the angles of the triangles have been gauged correctly, of bringing down the lip line in a very natural manner, as may be seen in Figure VII (compare Figure XVI). Figure XX also shows the result in a similar case

FIGURE XX.
Result Some Years after Triangular Flap Operation for Harelip. Note absence of retraction.

some years after operation—no tendency to retraction can be detected. The method is also applicable to cases in which a growth has been excised from the lip and a simple bringing together of the incision lines has caused elevation (or depression) of the lip line. It is almost more important to correct even small depressions in the lower lip than the upper, since they cause much discomfort to the patient by permitting the escape of fluids from the mouth. If the defect is in the vermilion border of the lip and is more horizontal in character than vertical, the deficiency is best supplied by a small flap of mucous membrane from the inside of the opposite lip.

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THE EFFECT OF LIGHT AND OF DRYING ON INFECTIVE HOOKWORM LARVÆ.

By G. M. Heydon, M.C., M.B., Ch.M. (Sydney), D.P.H., D.T.M. and H.

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The Effect of Light.

The prevailing view is that the light of day is not inimical to hookworm larvæ. Looss[1] discussed the matter fully and arrived at this conclusion after reviewing his own observations and those of earlier workers, some of whom had maintained the contrary. He maintained that any adverse action of sunlight was indirect and due to its "promotion of the processes of decomposition and decay" and raising the temperature. The band of more recent hookworm investigators seems to have accepted the conclusion of Looss and regard sunlight as not directly harmful to the larvæ.

The truth is that some of the earlier observers were right and that continuous exposure to even diffused daylight is rapidly fatal to infective larvæ of both the human species of hookworms.

The writer was led to experiment on the subject by a mysterious mortality of hookworm larvæ contained in watch glasses of water in a room where they were exposed to diffused light only; it had previously been the practice to keep them in a cupboard. For a time some new arrival among the vegetable or animal microorganisms in the water or some other unknown factor was suspected.

Some of the observations made will first be detailed, after which their apparent conflict with those of Looss and others will be discussed.

The writer's observations have been confined to "mature" larvæ in the infective stage, both sheathed and unsheathed, the former preponderating. But some of the experiments of the earlier observers described by Looss and even some of his own seem to indicate that light is injurious to ova and the younger larval stages as well; but Looss did not so interpret them.

As a test of life stimulation of the larvæ by bringing a warm needle near them under the dissecting microscope has been employed. Larvæ which do not respond by the slightest movement, are usually dead or dying, but a later examination has always been made and processes of disintegration looked for. The ages of the larvæ given below are reckoned from the approximate date of hatching, that is one day after culture. They were isolated after seven days' culture and kept in shallow glass vessels of water practically free from particles of earth or sand; the methods of culture and of isolation were those described in a previous paper.[2] All the larvæ used were kept in the dark except during the experiments. When exposures were made to direct sunlight, the maximum temperature reached by the water containing the larvæ at no time exceeded 35·50° C.; the day temperatures in the laboratory varied from about 23° to 26° C..

1. Two shallow vessels of thick glass with plate glass covers, each containing a mixture of larvæ of *Ancylostoma duodenale* and *Necator americanus*, sixteen days old, were placed near a closed window where there was plenty of light, but never direct sunlight. One vessel was within a closed box, the other exposed to the light on top of the box. Three days later every larva was dead and disintegrating in the vessel exposed to the light, the other contained plenty of vigorous larvæ of both species.

2. The last experiment was repeated with larvæ of *Ancylostoma duodenale*, twenty-seven days old, which had just been passed through sand and were in very clean distilled water. The result was the same.

3. Larvæ of *Ancylostoma duodenale*, eight days old, with plenty of "reserve granules" and larvæ of *Ancylostoma braziliense*, fifty-two days old, were exposed to strong sunlight in a watch glass resting on a white ground for two hours. None survived.

4. Larvæ of *Ancylostoma duodenale*, eight days old, were exposed to strong sunlight in a watch glass resting on a white ground for three-quarters of an hour. They were examined two days later, when nearly half were dead. Four days after the exposure all were examined; six were alive and sixty dead; no further mortality occurred among these six.

5. Larvæ of *Ancylostoma duodenale*, forty-one days old, were exposed to strong sunlight for two hours in a silica crucible lid containing a thin layer of wet, coarse yellow sand. No larvæ survived.

6. Larvæ of *Ancylostoma duodenale*, nineteen days old, were exposed in three test tubes to direct sunlight on a hazy afternoon. Tubes (*a*) and (*b*) were surrounded by four centimetres of water and were exposed for two and one and a half hours respectively; tube (*c*) was surrounded by one centimetre of saturated aqueous solution of picric acid and was exposed for two hours. Examined just after the exposure a few only of the larvæ from (*a*) responded to stimulation with the warm needle by feeble movement of the anterior end; some of those from (*b*) moved sluggishly, while those from (*c*) were lively and remained so at every subsequent examination. Next day no movement could be elicited from any larvæ from (*a*); some of those from (*b*) moved sluggishly. Four days after the exposure the larvæ from (*a*) were all decomposing; most of those from (*b*) were dead and the rest still sluggish. Eight days after exposure all but two larvæ from (*b*) were dead, but these seemed now to have recovered their vigour; every larva in (*c*) was alive.

7. Larvæ of *Ancylostoma duodenale*, sixty-one days old, were exposed on a roof for five days, three of which were cloudless. The light which reached them, had to traverse three centimetres of a saturated aqueous solution of picric acid and was somewhat concentrated by refraction at the surface of the cylindrical beaker containing it. The larvæ appeared none the worse at the end of the exposure and most of them were alive two weeks later.

8. Larvæ of *Ancylostoma duodenale*, twenty-seven days old, were exposed in the same manner as in the last experiment, except that the light filter used was three centimetres of a 2% solution of sulphate

of quinine in 0·6% sulphuric acid. The period was four and a half days, of which the first three were cloudless. Examined after two days most of the larvæ responded sluggishly or not all to stimulation with the warm needle; at the end of the four and a half days all were dead and disintegrating.

9. Larvæ of *Ancylostoma duodenale*, twenty-six days old, were exposed to strong sunlight through eight centimetres of water and eleven millimetres of museum jar glass. The period was one and three-quarter hours and the light on the larvæ was somewhat concentrated by refraction. Examined immediately afterwards and four hours later, none made any response to stimulation. The next evening all were certainly dead.

Other observations were made on necator larvæ besides the single one here recorded and it is certain that they share with larvæ of *Ancylostoma duodenale* a susceptibility to light; it was not determined which species is most resistant.

Larvæ, kept in complete darkness in water, suffer practically no mortality for a long time; after four weeks or so it may be difficult to find a single dead specimen; when they are kept in a poorly lighted cupboard, deaths begin to occur at a much earlier period. Looss states that a percentage of larvæ always dies off in the first few days and mentions that his cultures were not protected from light.

These observations prove that a continuous exposure for two hours in clean water to direct sunlight in Townsville is sufficient to kill all mature larvæ of *Ancylostoma duodenale*. Larvæ of *Necator americanus* are similarly affected and both species are killed by a few days' exposure to diffused daylight in a well lighted room. Indications have been obtained that young infective larvæ are rather more resistant than those weeks old. The active part of the solar spectrum is not completely absorbed by passage through water or ordinary glass of the thickness recorded, but is absorbed by aqueous picric acid solution and incompletely by quinine sulphate solution. If the exposure to sunlight has been a little below or a little above the lethal dose, the larvæ may in the former case require days to regain an apparently normal condition and in the latter may linger on for days before they finally die.

The literature of this subject has been consulted as far as possible. None of the hookworm investigations published after the date of the work of Looss[1] which have been seen, appears to attribute a lethal effect to light due to its direct action apart from desiccation and heating. But only abstracts of the important work of Baermann[3] have been available. In the experiments of Nicoll[4] it appears that the sunlight could not have reached the majority of the organisms and the effect found was probably due to heating, as the author himself appears to suggest.

Looss in his discussion of earlier work, most of which has not been accessible, mentions the opinion of Tenholt in 1896 that light is adverse to eggs and larvæ; of Bruns in 1904 that three days' intense sunlight kills eggs and that diffused light will also in time kill eggs and especially the early larval stage and of Lambinet in 1901 that the movements of mature larvæ exposed to the sun become slower and eventually cease and that most of the larvæ are dead in from twenty-four to forty-eight hours.

For the contrary opinion he quotes a longer list and himself supports it emphatically. He argues that his cultures throve, although exposed to plenty of diffused light, but elsewhere states that they were always made with charcoal. Incidentally the possibility may be suggested that the favouring effect of charcoal on cultures made by his method may be due as much to its absorption of light as to its effect on putrefactive processes. In experiments in which development failed to occur in cultures exposed to the sun, Looss attributes the result to the elevation of temperature and promotion of decomposition. He maintains that some experiments, made on a microscope stage with cultures partly illuminated, presumably by daylight, through the substage condenser, were conclusive that light has no action; the possibility of the absorption of harmful ultra-violet radiation by some component of the optical glasses is not considered.

But Looss as well as the more recent investigators might seem to be on strong ground in emphasizing the fact that larvæ will live in soil exposed to sunlight, for instance, European brickfields and irrigated land in Egypt and in pointing out that infective larvæ have a habit of extending themselves singly or in bundles into the air from prominent particles on the surface of a culture. They may also climb the sides of glass vessels and such objects as fragments of dead grass, provided a film of moisture is present. It is said that they may behave in this way both in darkness and in strong light and that there is no evidence that they either seek or avoid the light. From the fact that larvæ do not avoid the light, it is assumed by Looss and others that it cannot be harmful to them.

The publications of the investigators associated with the Rockefeller Foundation contain references to infective larvæ, usually necators, living in ground exposed to direct sunlight and give interesting details of the aerotropic habit under natural conditions and in strong light. Shaded ground is considered more favourable to the development and survival of larvæ than that exposed to the sun, but it is contended that this is not due to any direct adverse action of sunlight, but to its drying action on the soil.

The writer has made but few observations on the phenomenon of aerotropism and has never seen its most striking manifestations. Several observers mention that it is more marked in the larvæ of *Ancylostoma caninum* than in those of the human hookworms, but it has often been observed in cultures of *Necator americanus* larvæ and the observations of Looss were probably made on those of *Ancylostoma duodenale*.

The writer believes that under natural conditions in the soil the direct action of light is probably an important agent in shortening the life of infective hookworm larvæ. It is admitted that this conclusion does not necessarily follow from the obser-

vations here recorded; further work is required to determine whether discontinuous illumination is as harmful as continuous, for instance, short periods of exposure to light separated by long ones of darkness and also whether larvæ in earth under natural conditions die out sooner when exposed to daylight than when kept in obscurity, in conditions otherwise similar. The experiments of Baermann seem to indicate that they do, although they have been interpreted otherwise.

On the other hand the facts at present known concerning survival in soil exposed to the sun and the aerotropic habit certainly do not warrant the generally accepted inference that light is without effect. It is known that the larvæ live near the surface of the ground and sometimes come out and expose themselves fully to strong light; it is not known how often they do this nor for how long at a time. At a depth of a few millimetres below the surface of most soils there would be very little light.

It does not necessarily follow from the fact that larvæ sometimes expose themselves to light that it is harmless to them; it may well shorten their lives in the soil just as their activity of movement in warm climates is known to do; but both practices may increase the chances of a few larvæ reaching the skin of the host.

The factors concerned in the aerotropic habit are incompletely understood; surface moisture and a suitable temperature are necessary conditions. It may be an instinctive reaching out for the mammalian host. It has been suggested that it may be an effort to escape when the conditions in the culture are unfavourable. Radiant heat may possibly play a part; infective hookworm larvæ are very strikingly thermotropic; the warmth of the sun may lure them forth to their destruction.

The very different results obtained by different investigators of the longevity of hookworm larvæ in earth cultures, both natural and artificial, is rather striking. For instance, while some earlier observers found them to live many months, Augustine[5] concluded that the extent of their life is limited to about six weeks, a conclusion which was once more disputed by later investigators. The conditions as to light probably partly account for these discrepancies. The experiments of Augustine were planned to reproduce natural conditions and the vessels containing earth and larvæ were exposed out of doors to the tropical light of Trinidad, sometimes to direct sunlight. He found that the larvæ came to the moistened surface in numbers and rapidly died off in a few weeks.

The Effect of Drying on Infective Hookworm Larvæ.

In the course of other work on infective hookworm larvæ some observations were made on their power to resist desiccation and a few of them are recorded below.

Quite conflicting statements exist on this subject. Looss[1] says that the larvæ succumb as soon as the fluid inside the sheath has evaporated and the larvæ are shrivelled. His observations were made on larve of *Ancylostoma duodenale* in the very dry climate of Egypt. The prevailing view, based mainly on observations on larvæ of *Necator americanus,* is in agreement with Looss that once the larvæ are dry they die almost immediately. The writer also has found that infective larvæ of *Ancylostoma duodenale* can survive drying for short periods only, though for more than a few minutes, in the climate of Townsville. But in apparently dry earth some of them may survive for a few days. The larvæ of *Necator americanus* seem to be less resistant to drying, as was found by Svensson.

The majority of the larvæ used in all the following experiments were sheathed.

1. Some larvæ of *Ancylostoma duodenale* in clean water, seventeen days old, were placed after dark on a small piece of filter paper supported on a needle. At 9 p.m. the paper seemed quite dry. At 9.40 it was placed in water and at 10 p.m. some of the larvæ when detached from the paper and examined under the microscope were seen to be shrunken within their sheaths and air was present round them. Eleven of these larvæ were left in the field of the microscope and at 10.25 they had imbibed water and the air had disappeared. At this time some of them were beginning to move feebly. These eleven larvæ were pipetted into another vessel. Next morning six of them were dead and five alive, though sluggish. In the vessel containing the rest there were also many living and many dead. Some days later a minority of the larvæ was alive, but these seemed quite active. The evening of the experiment was a dry one; the dry and wet bulb readings at 3 p.m. were 23·8° and 18° C. (75° and 64·5° F.).

2. A large drop of clean water containing numerous infective larvæ of *Ancylostoma duodenale* and a smaller number of necators was made to hang from a platinum loop which was then allowed to dry. An hour and a quarter after the completion of drying it was placed in water. Two days later only two larvæ were alive, both vigorous and both ancylostomes. At the time of this experiment the dry and wet bulb readings were 25·7° and 21·2° C. (80·2° and 70·2° F.).

3. Infective larvæ of *Ancylostoma duodenale* and larvæ of *Ancylostoma braziliense,* fifty-one days old, in clean water were placed on pieces of filter paper, where they remained for two and a half hours after the papers seemed dry. The dry and wet bulb readings at the time were 22·7° and 17·3° C. (73° and 63·2° F.). None of the *Ancylostoma braziliense* survived, but about 5% of the *Ancylostoma duodenale* recovered.

4. In this and the two following experiments the earth used was of loose character, devoid of clayey quality and not rich in humus.

About fifty larvæ of *Ancylostoma duodenale,* a month old, were placed in a quantity of wet earth which was left on a piece of paper in the laboratory. Three days later it looked and felt quite dry to the centre and could be crumbled into a dry dust. It was left for two days more when a sample of it was found to lose 0·5% of its weight on prolonged drying at 105° C.. It was then moistened and later placed in the isolation apparatus. One living and active larva was obtained.

In this experiment the earth contained no added organic matter; in the two following old cultures were used which had been made with earth and emulsified fæces.

5. A culture of *Ancylostoma duodenale*, made a month previously, the larvæ in which had never been numerous, was allowed to dry on a sheet of paper. It took seven days to become thoroughly dry throughout and was left for a further three days, when a sample of it lost 1·1% of its weight at 105° C.. It was then wetted and twenty-four living larvæ obtained. The mean dry and wet bulb readings at 3 p.m. during this and the preceding experiment were about 25° and 20·5° C. (77° and 69° F.).

6. Part of a ten-day-old culture which had yielded numerous larvæ of *Ancylostoma duodenale* and *Necator americanus* in the ratio of seven to one, was exposed to the air and appeared thoroughly dry throughout after four days. Twenty-four hours later a part of it, on being wetted, yielded thousands of larvæ; two hundred on examination proved all to be ancylostomes. Five days after it had become dry a further portion after wetting yielded five ancylostome larvæ. The remainder, twelve days after drying, yielded no larvæ. The weather was rainless throughout and the mean dry and wet bulb readings at 3 p.m. were 28·5° and 23° C. (83·3° and 73·4° F.).

Two of these observations suggest that *Ancylostoma braziliense* probably does not differ much from the human hookworms as regards the powers of the larvæ to withstand light and drying. No observations have been made on the larvæ of the other common hookworm of cats and dogs *Ancylostoma caninum*. The larvæ of these species are of interest both on account of the difficulties they may cause in the examination of soil and because one of them is now suspected by American investigators to be the cause of a form of creeping disease in Florida. The photographs and description of the condition leave little doubt that it is the same as a creeping affection of the feet common in Townsville and other parts of North Queensland and popularly known as "sand worm." The writer has made attempts to produce the condition experimentally with larvæ of *Ancylostoma braziliense*, but so far without success. However, *Ancylostoma caninum* seems the more likely of the two to be responsible since *Ancylostoma braziliense* can parasitize man in a normal manner.

Earlier in this paper mention was made of the use of a warm needle to stimulate infective hookworm larvæ. Special apparatus has been devised by Fulleborn and others for the purpose of employing the thermotropism of hookworm and *Strongyloides* larvæ to separate them from free living larvæ of the earth. The warm needle is a very simple instrument by means of which the presence of a few hookworm larvæ among a number of free living larvæ may be detected without recourse to morphological characters or the higher powers of the microscope. A needle with a metal handle is best, since it does not need such frequent reheating in the flame and loss of warmth is at once noticed. The larvæ are examined under a dissecting microscope at the same time that the point of the needle is dipped into the water containing them and passed near to all parts of the collection. Hookworm larvæ which respond to the approach of the needle by a violent increase in activity, are at once detected and can if necessary be pipetted on to a slide for further examination; the free living larvæ make little response.

An observation has just been completed on the effect of discontinuous illumination on hookworm larvæ. Some larvæ of *Ancylostoma duodenale*, ten days old, were exposed in a watch glass resting on white paper to strong sunlight for six minutes each day. The temperature was kept below 31° C.. At all other times they were kept in the dark. Examined just before the fifth exposure, only a few living larvæ were found and these were feeble. Twenty-four hours after the fifth exposure all but one were quite dead and that was nearly dead. The total exposure which killed, was thus half an hour, certainly not a longer time than would have been required if it had been given continuously.

Summary and Conclusion.

It has been shown that, contrary to the accepted view, the light of day rapidly injures and kills infective hookworm larvæ of both the human species; the practical implications are discussed.

Infective hookworm larvæ do not die at once in earth which has been dried in the atmosphere of Townsville; some of them survive for several days; the larvæ of *Ancylostoma duodenale* survive longer than those of necator.

References.

(1) A. Looss: "The Anatomy and Life History of Anchylostoma duodenale Dubini, Part II," *Records of the School of Medicine*, Cairo, Volume IV, 1911.

(2) G. M. Heydon: "The Differences Between the Infective Larvæ of the Hookworms of Man," THE MEDICAL JOURNAL OF AUSTRALIA, April 9, 1927, page 531.

(3) G. Baermann: "*Uber Ankylostomiasis, deren Ausbrietungsbedingungen durch die Boden infection und deren Bekampfung*," *Geneeskundig Tijdschrift voor Nederlandsch-Indie*," 1917, Volume LVII.

(4) W. Nicoll: "Observations on the Influence of Salt and Other Agents in Modifying the Larval Development of the Hookworms," *Parasitology*, 1917, Volume IX, Number 2.

(5) D. L. Augustine: "Investigations on the Control of Hookworm Disease. IX: On the Position of the Infective Hookworm Larvæ in the Soil. X: Experiments on the Length of Life of Infective Hookworm Larvæ in Soils," *American Journal of Hygiene*, 1922, Volume II, Number 2.

Reports of Cases.

LARVA MIGRANS (MYIASIS LINEARIS) OCCURRING IN THE TERRITORY OF NEW GUINEA.

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LARVA MIGRANS or *myiasis linearis* is the generic name given to a condition first described by Lee in 1874 and

produced by certain burrowing parasites or even, it is said, by inanimate bodies, such as a hair. It is characterized by a very slightly raised red line, from 1·5 to eighteen millimetres (one-sixteenth to three-quarters of an inch) broad, which creeps forward as much as 2·5 centimetres (an inch) a day in a sinuous pattern, the earlier portions fading as it proceeds and the line consequently remaining about a constant length. Its progress is associated with intense itching and secondary infection often occurs from scratching. It is said that if the "larva" be not captured and destroyed, it may exist and travel for months or years. Occasionally the "larva" may be detected as a brownish spot slightly beyond the advancing end of the line and identified specimens have proved to be larvæ of *Hypodermia bovis, Gastrophilus hæmorrhoidalis, Gastrophilus veterinus et cetera.* Looss incriminates also the larvæ of *Ancylostoma.*

The case under review occurred in Rabaul (4° south, 152° east approximately) in a female European child, aged two and a half years and infection possibly occurred on the east coast of the island of New Ireland close by some month or so previously. In this latter locality cases are reputed to exist among the natives. The condition first appeared as a small itching spot on the dorsum of the left foot immediately distal to the metatarso-phalangeal joint of the big toe. This spot was secondarily infected and became pustular, the infection travelling slowly along the course shown in the diagram as I—I*a*.

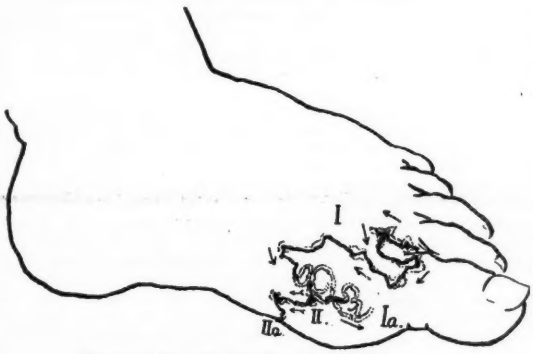

Figure showing Track of Infection.

Upon its reaching the latter point on June 9, 1927, the case was referred to the writer in consultation and diagnosed as *myiasis linearis.* On June 10, 1927, the child was anæsthetized and the whole track to the point I*a* opened up and thoroughly scrubbed with solution of biniodide of mercury. The skin of the neighbourhood was explored in every direction, but no "larva" or other parasite was seen. Immediate examination of the contained matter microscopically, however, revealed what appeared to be portions of a mite. These were too much damaged to be recognizable.

It was considered that this treatment would be sufficient to cure the condition, but two days later, June 12, 1927, an extension of the line appeared over the area marked II—II*a*.

A second anæsthetic was administered, the former treatment instituted and further a circular piece of skin and tissue eighteen millimetres (three-quarters of an inch) in diameter was excised around the travelling end.

Cure followed, the wound healing in a few days uneventfully.

The excised skin and the morbid matter from the track were submitted to microscopical examination and the bacteriologist of the Commonwealth Health Laboratory, Rabaul, Dr. T. C. Backhouse, reported the presence of another damaged mite and what appeared to be eggs. These specimens were examined by Dr. Backhouse and the writer and the mite though unidentified showed characters resembling a sturdy *Rhizoglyphus.*

In the opinion of the writer the causative agents of the "creeping eruption" in this case were two mites (? male and female) resembling, as stated, the *Rhyzoglyphus* type.

The specimens (which may be identifiable by other observers) will be submitted to further examination as opportunity offers.

TWO CASES OF POLYCYSTIC DISEASE OF THE EPIDIDYMIS.

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Clinical Histories.

Case I.—H. K., aged three, was admitted to the Sydney Hospital on February 27, 1922, with a history of a swelling in the scrotum on the right side ever since birth. It had shown no evidence of increase in size and had never seemed to cause pain or discomfort.

Examination showed a rounded, soft, fluctuating swelling in the right side of the scrotum. It was not tender, exhibited no impulse on coughing and was not reducible into the inguinal canal or the abdomen. The testicle could be felt towards the posterior and medial aspect. No other abnormalities were apparent and the patient seemed in good health.

On March 3 he was operated on, when the tumour was seen to consist of a closely packed mass of small cysts with thin, delicate walls, and filled with clear colourless fluid. The cystic mass was apparently in close association with the epididymis.

The operative treatment consisted in cutting away the cystic mass as completely as possible, having regard to the integrity of the normal organs.

Case II.—G.G., aged forty-one years, was admitted to the Sydney Hospital, May 1, 1922. He gave a history of "swollen testicles," with a duration of from fifteen to twenty years. In the last twelve months the enlargement had increased to a considerable extent.

Examination showed a translucent pyriform enlargement of both sides of the scrotum. The testes could be felt at the postero-inferior aspect. In all other respects, he appeared to be physically normal and in good health.

At the operation, May 3, 1922, the condition was found to be due to a bilateral polycystic development in connexion with both testicles, and apparently chiefly developed from the region of the epididymis. The cysts were thin-walled and filled with clear hyaline fluid, not yellow-tinted as in ordinary hydrocele. The individual cysts varied in size from, say, a capacity of two cubic centimetres down to a size no bigger than fine shot, and constituted a closely bunched mass. There was a small quantity of fluid in the *tunica vaginalis,* about two cubic centimetres, and its pale straw colour was seen to contrast with the hyaline fluid of the cysts.

The cysts were excised as completely as possible on both sides.

The pathological report by Dr. P. E. Walton Smith was as follows: "The condition is apparently a cystic formation arising from the *vasa efferentia* and from embryonic remains. Spermatozoa present in fluid."

Comment.

The distinctive feature in these two cases is the enormous multitude of cysts. I have see nothing similar, nor have I been able to find any similar cases recorded, though I admit that it has been impossible to go through all the literature systematically. No doubt, these cases could properly be classified clinically as cases of encysted hydrocele of the epididymis, but the examples of encysted hydrocele of the epididymis usually met with consist of single cysts, or at most a few. The single cysts are usually known as spermatoceles. I think I am justified in describing the cases I have recorded by the new name of polycystic disease of the epididymis.

Reviews.

A DERMATOLOGICAL TEXTBOOK.

DR. ALBERT STRICKLER'S book, a "Textbook of Diseases of the Skin and Syphilis," is intended for the student and general practitioner.[1] It is very well printed on good paper and the illustrations are excellent and well produced. The great feature of the book is the use of the tabular form for the discussion of differential diagnosis. These tables are well done and should be of great assistance to the student. Another feature is that in the formulæ the exact purpose for all the ingredients is also shown. Not too much space is given up to the rarer manifestations of skin diseases, but they are mentioned sufficiently and the main part of the book is concerned with the commoner forms of disease.

Each disease is treated under the headings of symptoms, definition, eruption, ætiology, progress and treatment; this arrangement will prove of use in reference. The pages referring to treatment are sufficient for all practical purposes, but there is a tendency to polypharmacy in many of the prescriptions and there is no mention of the use of manganese in the staphylococcus group of dermatoses. The subject of syphilis is well treated and especially well illustrated and the differential diagnostic tables are especially well compiled. The suggested plan of treatment is definitely set out, though rather too much reliance is placed on the absence of reaction to the Wassermann test in the treatment of the primary sore.

This is a book which can be recommended to students and general practitioners as a handy and readable textbook.

ENDOCRINOLOGY.

IN Part II of "The Endocrine Organs: An Introduction to the Study of Internal Secretion," Sir E. Sharpey-Schafer deals with the pituitary, the pineal, the alimentary canal, the pancreas and the sex glands.[2] This is the second part of the second edition of "Schafer's Endocrine Organs," the first part having appeared in 1924. This book is without question the most authoritative work on the subject that has appeared. There is a wealth of detail treated in a properly critical spirit.

The pituitary body is treated from all aspects, anatomical, histological, chemical, physiological and clinical in one hundred and forty-three pages and nothing of importance seems to have been overlooked. The very doubtful data concerning the activity of the pineal body are given without much comment.

Secretin and gastrin are treated very briefly. A short but sufficiently full account of "Insulin" and its activity is given.

Finally one hundred and twelve pages are devoted to the internal secretion of the sex glands and a well balanced account is here given of modern work. There is a very extensive bibliography, the references being given at the foot of each page. The illustrations are all that could be desired.

GRAY'S ANATOMY.

ROBERT HOWDEN who has for the past twenty-five years been associated with the numerous revisions of Gray's Anatomy, is again responsible for this new edition.[3]

An attempt has been made to bring the text thoroughly up to date by the inclusion of numerous references to recently published articles, among which may be mentioned Woollard's work on the innervation of the heart and Lightoller's work on facial muscles.

The text still maintains its reputation for clearness, conciseness and accuracy which renders it so valuable to the busy practitioner and medical student and the notes on applied anatomy still form a valuable and important part of the work which makes it so useful to the operative surgery classes and the practising surgeon.

Twenty more new coloured diagrams and beautifully coloured illustrations of dissections and microscopical sections have been added. Among these may be specially mentioned dissections of the occipital triangle of the prevertebral region of the neck, of the occipital region, of the carotid triangle, of the roof of the thorax and of the relations of the hepatic artery, diagrams of lymphatics of the face, of sections of the orbit and of peritoneal reflexions.

Besides this many blocks have been replaced by others which are a distinct improvement on the old ones, for example, one showing the central connexions of the acoustic nerve. The new edition is a genuine revision and an honest attempt to bring this old friend right up to date, so that it may continue to render that service which has entitled it to popularity for more than half a century.

CLINICAL PÆDIATRICS.

"EXAMINATION OF CHILDREN BY CLINICAL AND LABORATORY METHODS" by Dr. Abraham Levinson, is a concisely arranged volume of one hundred and ninety-two pages.[1]

It is an excellent work, especially for students, resident medical officers and also for those practitioners who are about to commence practice without having had the advantage of experience at a hospital for children and infants.

The early chapters on the clinical examination of the child deal very thoroughly with the method of obtaining a case history and eliciting the clinical signs when confronted with a sick child. The subject matter is well supported by photographs of methods of examination and typical clinical conditions so often encountered in a pædiatric practice. The paragraph dealing with convulsions is rather summarily dismissed and we should have preferred to have seen a more detailed account of a condition which may be associated with such a number and variety of pathological conditions in a child. A very detailed average height-weight table is given, but the author has failed to indicate that the most important criterion of a child's progress is that the curve should run parallel to the normal curve and that a distinct variation above or below the normal is quite consistent with a healthy thriving youngster.

A very comprehensive account of the various laboratory methods is contained in the succeeding chapters together with very clear descriptions of the methods of obtaining the various specimens for the clinical pathologist. With regard to the collection of blood specimens a word of warning might be given as to the risk of an intracranial hæmorrhage following longitudinal sinus puncture in an infant, especially if the baby is jaundiced.

No mention is made of the excellent methods of obtaining specimens in those children who have no suitable veins for the purpose, namely, stabbing with a sharp tenotome on the heel in infants or the thumb in older children; the large incision and dry cupping, as recommended, seem quite unnecessary.

An excellent series of radiograms supplements the chapter on the use of X rays in diagnosis.

A very complete system of case histories and charts is supplied at the end of the volume which of course would be of value only for filing information in hospital records. A detailed index completes a very useful volume which is well printed on excellent paper and nicely spaced so that reading is a pleasure. It is a work which can be highly recommended, and it is worth a place in the library of every practitioner who is interested in the diseases of children.

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[1] "Textbook on Diseases of the Skin and Syphilis Designed for the Use of Students and Practitioners," by Albert Strickler, M.D.; 1927. Philadelphia: F. A. Davis Company. Royal 8vo., pp. 710, with illustrations. Price: $8.00 net.

[2] "The Endocrine Organs: An Introduction to the Study of Internal Secretion," by Sir E. Sharpey-Schafer, LL.D., D.Sc., M.D., F.R.S.; Second Edition, Part II.; 1926. London: Longmans, Green and Company, Limited. Crown 4to., pp. 260, with illustrations. Price: 20s. net.

[3] "Anatomy, Descriptive and Applied," by Henry Gray, F.R.S., F.R.C.S.; Edited by Robert Howden, M.A., M.B., C.M., D.Sc., LL.D.; Twenty-third Edition: 1926. London: Longmans, Green and Company, Limited. Royal 8vo., pp. 1400, with illustrations. Price: 42s. net.

[1] "Examination of Children by Clinical and Laboratory Methods," by Abraham Levinson, B.S., M.D.; Second Edition; 1927. St. Louis: The C. V. Mosby Company; Melbourne: Stirling and Company. Imp. 8vo., pp. 192, with illustrations. Price: $3.50 net.

The Medical Journal of Australia

SATURDAY, OCTOBER 29, 1927.

New Points of View.

In the issue of The Medical Journal of Australia of October 8, 1927, our London Correspondent presented an outline of the many post-graduate courses that will be held in the capital city of the Empire before Christmas. The reader will be impressed by the variety of subjects and the multiplicity of bodies concerned in this work. These courses are designed for medical practitioners who have little opportunity of keeping abreast of the times by working in a great metropolitan hospital, by teaching students, by conducting experiments or by controlling the newer doctrines of medicine. They are to some extent refresher courses, for the participants receive instruction in the advanced work in the several branches of medical science. But they are certainly more than continuation courses of the teaching given to senior students. These post-graduate courses are probably more valuable to strangers than to graduates who are more or less familiar with the teaching of the lecturers and demonstrators.

The Melbourne Permanent Committee for Post-graduate Work has recently demonstrated that those responsible for the teaching to medical practitioners are fully seized with the importance of introducing new points of view. In August Professor Charles A. Elliott, of the Northwest University, Chicago, Vice-President of the American College of Physicians, a prominent member of the American Medical Association who has held important offices in that great organization, a physician of renown in the world of medicine, not only in America but also throughout the whole of the world, and Professor Allen B. Kanavel, also of the Northwest University, Chicago, Associate Editor of *Surgery, Gynecology and Obstetrics,* a recognized authority on many subjects in surgery and especially on the surgery of the hand, delivered lectures on their own subjects by arrangements with the Melbourne Permanent Committee for Post-graduate Work. There was a large attendance. Those who stayed away, did so at great loss to themselves. It was a rare opportunity of hearing at first hand the doctrines of two eminent teachers and learned men from another country. It is true that our own graduates can read Professor Elliott's and Professor Kanavel's writings, but the spoken word is more searching than the written word; it is supported by the compelling force of personality and is augmented by those little side touches which are often interspersed in a speech, but omitted from an article. In the present issue we have the privilege of printing one lecture by Professor Kanavel and in a future issue one by Professor Elliott will appear. The reproduction of these lectures will serve a highly useful purpose, but it cannot be regarded as of equal value to the original spoken lectures. The hundred and thirty-one practitioners who attended the classes, were wise. Incidentally it should be noted that the medical profession in Australia has been placed under a debt of gratitude to these distinguished gentlemen from the United States and it is meet that that sentiment of gratitude and indebtedness should be expressed in suitable terms or by suitable actions.

An appeal was recently made in these columns to our University medical schools for wider and greater facilities for post-graduate study. Keen practitioners look to the Universities in Melbourne, Sydney and Adelaide for specialized teaching, in order that they may equip themselves with knowledge in the various branches of medicine. The medical student leaves his school after having completed a somewhat ill-planned but comprehensive course. This course has grown by additions to and modifications of an old course which was admirably suited to the amount of teaching demanded. The day of amendment has passed and we await a bold reform of the medical curriculum, the scrapping of the framework and the complete reconstruction of the plan in accordance with modern views and modern knowledge. But even the most ideal course for students can achieve little more than the laying of a foundation of technical knowledge. The young graduate is lucky if he or she secures a resident appointment at his or her

old hospital; but this opportunity leads rather to the accumulation of experience than to an acquisition of extra knowledge. At all events when the graduate enters general practice or the public medical services, he or she has need for special education in particular fields, if the services to be rendered to the community are to be of a high order. There should be short, intensive courses on special subjects, demonstrations in well equipped laboratories and clinics, talks by teachers who have mastered particular branches of their science, and practical work directed by men with ability to impart information clearly and without waste of time. There should also be longer and more deliberate courses on general as well as special subjects. The longer courses should be practically continuous throughout the year. It is in them that new points of view are eminently desirable. If no distinguished teachers from the old country or from other countries are available, it would be possible for the medical schools to create a system of exchange of teachers. The Melbourne Permanent Committee has led the way. As pioneer it might coordinate the post-graduate work throughout Australia, so that every competent body, be it medical school, hospital, research institute, scientific society or other voluntary organization, may participate in the work of placing at the disposal of the Australian graduate the kind and amount of post-graduate teaching he needs.

Current Comment.

THE LEUCOCYTIC TIDE IN PATHOLOGICAL CONDITIONS.

The rhythmic variation in the number of leucocytes in the circulation has been discussed in these columns on several occasions. Sabin and her collaborators first described a regular variation in the number of leucocytes in normal individuals. The variations occurred approximately every hour and the differences in the number of cells per cubic millimetre amounted to as much as three or four thousand cells. They held that the entire normal range of variation in the number of cells is covered rhythmically every day and that the highest level is about twice the lowest. In May of this year reference was made to the work of Bernard Shaw on this subject. Shaw described two tides, a morning and an afternoon tide. He held that blood concentration could be excluded as a cause of the tides and he found that they did not synchronize with the curve of the body temperature. He found also that the curve of neutrophile cells followed persistently the curve of total leucocytes, but that that of the lymphocytes did not follow the total curve or did so only along a small sector. In discussion on the subject the view was expressed that useful information should be gained if observations were made on the leucocytic tides in pathological conditions. This has been done recently by C. A. Done and L. G. Zerfas.[1]

They begin by referring to the work of Sabin and her collaborators and of Shaw and they also mention some important work by Bushnell and Bangs who investigated the large individual variations in both white and red cells, occurring in normal rabbits. They concluded from their mean of 10,675 that $\pm$ 4,800·75 must be taken as the limits of normal for determination of the white cells and from a mean of 5,989,500 that $\pm$ 1,682,100 constituted the range of normal for the red cells. In one normal animal daily and hourly counts revealed as extreme limits for the white cells 10,200 and 13,600 and for the red cells 4,322,000 and 6,976,000.

Doan and Zerfas have studied "a wide series" of clinical conditions in which both leucopenia and leucocytosis of varying degree existed. From the whole series they have selected twenty cases in which the observations were complete. As a routine each patient was followed for a period of three hours at intervals of fifteen minutes. They have also made differential counts of the cells of the bone marrow. In an attempt to establish the nature of the apparent fluctuations in the total number of white cells coincident and simultaneous observations of the total red blood cells, hæmoglobin, hæmatocrit and serum protein were made in five cases. The curves of the red cells, hæmoglobin and hæmatocrit tended to follow each other, but had no relationship to the total white cell curve. The serum protein produced the most constant curve and this finding is in keeping with the commonly accepted view. Doan and Zerfas point out that the serum protein content has been used by pædiatricians as an index of dehydration. They hold that the lack of correlation between the curves of the serum protein, the white cells and the red cells in their series minimizes the possibility that blood volume and circulatory disturbances are solely responsible for the variation.

The lowest consistent number of leucocytes in any one case was observed in a patient whose condition was diagnosed as chronic osteomyelitis of the right tibia. The number of leucocytes found on successive days during the patient's stay in hospital was consistently below 4,000 per cubic millimetre. During the three hour period of consecutive observations at intervals of fifteen minutes the lowest number was 1,350 and the highest 2,850. They endeavoured to discover the range of technical error. In the case described this was estimated at a maximum

[1] *The Journal of Experimental Medicine*, September 1, 1927.

of 47%. This of course is very high and cannot fail to detract from the value of the observation. However, in the majority of instances they estimated that the technical error did not exceed 10%. It was also found that the number of myeloid, lymphoid and monocytic cells when compared with the average total number of leucocytes varied independently of one another. This independent variation is regarded as evidence against a simple dilution explanation for variations in the total number of cells. It must further be noted that the curve in this case was characterized by the afternoon rise which other observers have reported. At the same time the relative proportions of the three types of cell were approximately normal, there was no evidence of the relative lymphocytosis frequently seen in leucopenia. In another patient, suffering from pernicious anæmia, the number of white cells ranged from 2,900 to 5,300 per cubic millimetre and in this instance the counts were made at intervals of ten minutes. In a second patient with pernicious anæmia the range was from 4,000 to 6,500.

Cases of chronic and acute leucocytosis were also investigated. In one patient with chronic cystitis the range of leucocytes was between 9,500 and 15,500; in another with chronic *otitis media* the range was from 10,800 to 16,500. In both instances there was a definite hourly rhythm. This difference is so great that the clinical significance may well be emphasized at this point. If a single blood examination is made at a time when the trough of the wave is in evidence, a false clinical estimate may easily be made. In chronic leucocytosis the majority of the leucocytes are the mature forms, both young and old leucocytes are at a low level. As will be seen later this is different in acute leucocytosis. Lymphocytes and monocytes were found by Doan and Zerfas to be within normal limits. In discussing acute lymphocytosis they record a most instructive case of pneumonia. The patient was seen for the first time on the third day of the disease. No definite physical signs were discovered in the chest, the temperature was 39·1°C. (102·5°F.), the pulse rate was 100 and the respiration numbered 35 in the minute. A leucocyte count was made and a figure of 8,000 obtained. This happened at a time when influenza was prevalent and it appeared that influenza was probably responsible for the condition. Within an hour four more blood counts were made, the figure in three was above 16,000 and in one instance it was 20,000. Signs of consolidation appeared and a crisis took place on the fifth day. In another case of pneumonia the leucocytes ranged from 50,000 to 70,000. In acute leucocytosis, as in the chronic form, the polymorphonuclear cells were responsible for the increase. There was also noticeable a "shifting to the left" in the Arneth differential pattern—the younger neutrophile cells manifested a higher percentage than is found normally and the high points in the count were seen to be a reflection of the periodic increases in these forms. This difference in the findings in acute and chronic leucocytosis may be due to the fact that the bone marrow in a chronic condition has had time to readjust its output to the new circumstances associated with the infection. It is interesting to consider these observations in relation with the "showers of non-motile leucocytes" described by Sabin and her collaborators. It will be remembered that they found that "non-motile" forms occurred quite irregularly when supravital methods of staining were used. Sabin believes that the non-motile forms are the dying neutrophile cells. She also described a rise in the number of motile forms occurring shortly after the appearance of the showers of non-motile cells. Doan and Zerfas found a high percentage of actively motile neutrophile cells when they used the supravital method. The non-motile forms were relatively few except at periods of lowest ebb in the number of cells.

Observations were also made on a patient with lymphocytosis. The patient was suffering from pertussis. A low grade fever, cervical adenopathy and a moderate leucocytosis were present. It was found that the fluctuations in the lymphocytes were quite distinct from those of the leucocytes taken as a whole. The myeloid cells maintained their usual hourly rhythm and the lymphocytic fluctuations were manifest every half hour as in the normal state. When patients with leuchæmia were studied, it was found that there was no evidence of the periodical rhythmicity characteristic of lymphoid and myeloid cells. Doan and Zerfas hold that this is not surprising in view of the fact that the presence of a large number of immature forms in the peripheral blood indicates an entirely disordered mechanism of maturation and delivery.

In discussing their results these observers state that it is difficult to escape the impression that there are independent physiological controls for maintaining the relative normal levels of the different types of blood cells, just as there is a body growth-limiting mechanism, a heat-regulating centre or mechanism and a cardiac regulatory mechanism. This hypothesis which appears to be justified from the recorded observations, is an attractive one and it certainly explains why one type of bacterial infection results in a leucocytic response of a certain kind and why a second type of bacterial infection may produce quite a different response. At the same time it would be just as satisfactory to assume the selective action of different bacterial toxins or chemical substances on one of several parts of a single mechanism. This would be more applicable to the leuchæmic state in which according to Doan and Zerfas all regulation both as to primary formation and delivery and as to concentration of the cells in the peripheral blood is gone. It would be simpler to assume that the causative agent in leuchæmia acts on all parts of one mechanism than that it acts simultaneously on many. The subject, however, opens up the whole question of the resistance of the body to infection and for the understanding of this it would really be immaterial which of the two hypotheses just mentioned were accepted. Doan and Zerfas hold that the nature and degree of the leucocytic response are an index of the cellular factor in the "complex of resistance."

Abstracts from Current Medical Literature.

RADIOLOGY.

The Oral Method of Cholecystography.

W. H. STEWART (*Boston Medical and Surgical Journal*, March 31, 1927) publishes some observations on the oral method of cholecystography. The author found that the intravenous use of the bromide salt caused numerous disturbances and thus was led at an early date to use the sodium tetraiodophenolphthalein. Stewart prepares his own capsules just before use and coats them with keratin, although experiments show that there is little difference in reaction when only gelatin capsules are used. The gastro-intestinal tract is cleansed by a mild cathartic on the evening before examination and a simple enema is given in the morning. At 6.30 p.m. a rich, fatty meal is given and at 9.30 p.m. two capsules are given every fifteen minutes until 3·5 grammes have been taken. The patient reports at 9.30 a.m. next morning and again at 1.30 p.m. without having had any food since the meal on the previous evening. A rich meal is then taken and a further examination is made at 2.30 p.m. and the patient attends for further examination the next morning. Three skiagrams are made at each sitting. The author adds a warning against mistaking duodenal gas for negative gall stone shadows. Evidence of pathological lesions consists in: (i) absence of shadow, due to obstruction of cystic duct or impaired liver function (reexamination is of value), (ii) persistence of shadow after food which indicates a pathological gall bladder, (iii) faintness of shadow which indicates failure in bile concentration and points to pathological change, (iv) late appearance of shadow which is rare and generally points to a thickened gall bladder wall. An opaque meal should also be given. With good technique and an intelligent patient the intravenous method is unnecessary.

Exploration with Iodized Oil.

J. A. SICARD and J. FORESTIER describe their original work with "Lipiodol" in radiological diagnosis (*British Journal of Radiology*, B.I.R. Section, July, 1926). "Lipiodol" is a definite chemical compound in which 40% of iodine is bound to a fatty body (poppy-seed oil). It is bland and non-irritating and causes no ill after effects. The oil should be warmed before use and a large calibre needle should be used. On account of slow elimination a radiogram should be made of the part before injection; in each case a definite amount of "Lipiodol" is required and patients should be warned that it may be visible for months in radiograms. In cold abscesses and fistulæ very clear cut dark pictures are obtained. About eight cubic centimetres should be injected and the globules of "Lipiodol" can be traced through the pus to the site of infection. The bronchi may be explored by injection through the larynx or by puncture of the trachea through the skin and cricothyreoid membrane. Intratracheal anæsthesia is obtained by the use of a 3% solution of "Novocaine." The fluid should be warmed before injection and the patient lies on the affected side. The dose for adults is from twenty to forty cubic centimetres and lung cavities, bronchiectases *et cetera* are clearly outlined. The epidural space may be injected through the lumbar or cervical region. Any pressure or blockage will cause the arrest of the "Lipiodol" at that level. Among many other uses is mentioned the demonstration of the patency of the Fallopian tubes and the demonstration of any encroachment on the uterine cavity in pregnancy, fibroid or carcinoma.

Bone Diseases in Infancy and Childhood.

E. L. JENKINSON and P. LEWIN discuss the important bone and joint diseases occurring in infancy and childhood (*American Journal of Roentgenology*, February, 1927). The various conditions are discussed under the following headings: history, age, changes in epiphyses, epiphyseal line, diaphysis, shaft, medulla, cortex, periosteum and the joint, atrophy, fractures, deformities, special remarks, treatment and prognosis. Rickets, a nutritional disturbance, usually occurs between the sixth and twenty-fourth month. It attacks the ends of long bones near its epiphyseal lines. The shafts become curved and soft and the epiphyseal lines become irregular and hazy. The diaphyseal line shows characteristic saucer-like deformity. Rosary nodes are uncommon in the skull, but are seen in the ribs. Scurvy occurs between sixth and eighteenth month and is definitely a nutritional disturbance. It is very rare and is manifested as an area of rarefaction behind the diaphyseal line. The periosteum is elevated from subperiosteal hæmorrhage and calcification may occur in these regions. The joint is unaffected. Syphilis generally occurs before the seventh year and most frequently attacks the lower ends of the femora, the tibiæ, the distal ends of the ulnæ, radii and metacarpals; the ribs, vertebræ and skull may be affected. There is sclerosis at the epiphyseal line. Syphilis does not affect the epiphysis or the epiphyseal line and the articular surfaces are normal. Irregular, gouged-out areas occur at the diaphyseal line and are characteristic. Cortical thickenings (sabre shin) are common. Lesions are usually multiple. Tuberculosis occurs between two and ten years and history is of importance. There is limitation of motion with spasm, limp, local and referred pain, night cries, swelling of joints, atrophy, deformity, sensitiveness and tenderness. Tuberculin tests are important. Skiagrams manifest haziness, narowing of joint space and bone atrophy. In tuberculosis the arthritic cartilage is destroyed first in the region where it is not in contact with opposing articular surfaces. Other lesions are discussed including non-tuberculous epiphysitis, Legg's disease, osteomyelitis, *osteogenesis imperfecta* and other rare lesions. Tables referring to differential diagnosis accompany this article.

Gall Bladder Diagnosis.

F. S. BISSELL (*Radiology*, September, 1927) discusses the guiding principles in the radiological diagnosis of gall bladder lesions. He recommends the making of preliminary films followed by dye administration. If a suspicious shadow suggestive of the gall bladder is seen in the preliminary film, after the dye such area may prove to be (i) not the gall bladder or (ii) a gall bladder into which the dye has been excreted and which empties in a normal manner. If the dye is not excreted, it is accepted as conclusive evidence of pathological change. A decrease in density after fat ingestion without reduction in size strongly suggests disease. Filling and emptying do not prove normality, as such may occur in the presence of gall stones. Emptying time is of no value in diagnosis.

Renal Lesions Other Than Stone.

W. M. SHAW (*American Journal of Roentgenology*, April, 1927) draws attention to the condition of persons suffering from "pain in the back" who receive reports that no calculus is present and on whom no further investigation is made. In only 16% in a series of 1,326 cases were calculi discovered, leaving 1,113 with normal findings. Combined work between radiologist and urologist is necessary and uretero-pyelograms are of greatest importance in investigating these obscure lesions. A 15% sodium iodide solution is recommended. First cystoscopy with inspection of the bladder mucosa and ureteral orifices is undertaken, then ureteral catheterization and, if hydronephrosis is suspected, a measurement of the renal capacity. Separate specimens of urine are collected from each kidney for microscopical study, culture and guinea pig injection. A renal function phthalein test is done separately on each kidney. Pyelograms are then made with the patient in the horizontal and vertical positions. The author then describes various appearances in health and disease. Early hydronephrosis causes dilatation of the renal pelvis and calyces and it may follow any obstruction of the ureter. In renal tuberculosis casts of the pelvis may be found or possibly large branched stones; the kidney pelvis is contracted and distorted. Ureteral deformities and obstructions are readily demonstrated and before ureterograms are made, the catheter should be withdrawn to the lower end of the ureter. Renal tumours cause distortion of the renal pelvis shadow.

PHYSICAL THERAPY.

Antirhachitic Properties of Cod Liver Oil and Vegetable Oils.

Eigil Rekling (*Acta Radiologica*, December 15, 1926) has attempted to discover some photoactive difference between cod liver oil and vegetable oils to account for the corresponding difference in their antirhachitic properties, as the latter are actually antirhachitic only after irradiation with ultra-violet light. Cod liver oil was always found to affect a photographic plate, whereas this property was absent in linseed and olive oils. Ultra-violet irradiation of cod liver oil produces a much stronger photoactivity than corresponding irradiation of the other oils. Cod liver oil, after standing in darkness, developes photoactivity to a considerable degree, linseed oil to a slight degree and olive oil remains inactive. The photoactive agent can be removed from the vegetable oils by forcing air through them, but the effect on the cod liver oil is much less pronounced. Prolonged ultra-violet irradiation prevents subsequent aeration from destroying the photoactivity. Cod liver oil demands less ultra-violet irradiation to retain its full photoactivity. The presence of oxygen during the ultra-violet irradiation is a necessary condition for the generation of photoactivity in the oils. The photoactive agent can be transferred to a fresh oil from an active one by having a current of air from the latter pass through the former. There is no ionization in connexion with the photoactivity of the oils. The presence of hydrogen peroxide in the active oils has been demonstrated and a consideration of the effects leads to the conclusion that the photoactivity is due chiefly to the formation of hydrogen peroxide, an oxidative change initiated or accelerated by ultra-violet irradiation. There does not appear to be any parallelism between photoactivity and the antirhachitic potency in the oils. Apparently cod liver oil contains some light-sensitive catalyser in which ordinary daylight readily initiates antirhachitic properties and the lack of some such sensitizer may account for the genesis of rickets in the young.

Hydrotherapy in Chronic Disorders.

Charles E. Stewart (*Archives of Physical Therapy, X Ray and Radium*, August, 1927) discusses the rôle of hydrotherapy in chronic disorders. Among chronic circulatory disturbances arterial hypertension receives benefit from hydrotherapy because of the increase in the capillary bed area, the increase in the elasticity of arterioles and capillaries and the improvement in the blood state by the increased elimination and oxidation of toxic substances. He recommends in uncomplicated cases daily tepid baths for twenty to thirty minutes followed by short cold applications of fifteen to thirty seconds or the electric light bath for eight to ten minutes followed by cold spray or shower at 32·2° to 21·1° C. (90° to 68° F.) not to exceed two minutes. Patients with hypotension are more suitable for hydrotherapy because vascular tone can be augmented to a greater extent by the application of cold than by any other known remedy. The technique consists of the application of two or three short hot fomentations on the abdomen or spine followed by a cold mitten friction or a cold towel rubbing or electric light bath for five minutes, followed by salt rubbing and then the cold shower or spray or sinusoidal current bath 32·2° C. (90° F.) for five minutes 29·3° C. (85° F.) for three minutes 26·6° C. (80° F.) for one minute and drying with considerable friction. At succeeding treatments the degree of cold and time of application should be increased. In other cases the restoration of normal liver and kidney functions can be helped by the application of hot sprays over the affected viscus for three minutes followed by the cold spray for one quarter of that time. The complete immersion of the body in the bath at 33·3° to 34·4° C. (92° to 94° F.) for twenty to thirty minutes helps renal elimination and is very useful as a sedative and hypnotic remedy. The mode of action is dependent on the intimate and generalized distribution of cerebro-spinal and sympathetic nerves in the cutaneous structures and their relationships to all underlying structures making it possible to modify reflexly the functions of the underlying structures. Again the specific heat of water is nearly the same as that of the body and it can be obtained as a liquid or solid or a gas. By its use heat can be communicated to and abstracted from the body. Finally according to its temperature the application of water to the body surface may be sedative or stimulant. Hot applications, if short, are stimulant, if long, are sedative, if very prolonged, depressant. The mode of application enhances the effect, strong sprays being stimulant, whole body immersion being sedative or depressant.

Facial Paralysis.

Delherm and Beau (*Journal de Radiologie et d'Électorologie*, June, 1927) point out that their work at *L'Hôpital de la Pitié* indicates that the classification of facial paralysis given by Erb is not quite complete. There are certain patients who exhibit no alteration in the electrical reactions according to Erb's scheme, yet a reaction of degeneration can be determined at a displaced motor point which can as a rule be easily located. Again certain forms of the reaction of degeneration last for several months. Sometimes these patients exhibit diminution in the faradic excitability of muscles and nerves and increased response of the muscles to galvanism, but with slow contractions. Certain patients with conditions of the middle class lasting one to three months manifest persistence of the normal faradic reaction. It is frequently observed that the prognosis in cases characterized by only a simple partial reaction of degeneration, is much worse than Erb indicates; in some cases the paralysis lasts for years. It may be said that when the simple partial reaction of degeneration is accompanied by increased excitability of the muscles to galvanism with slowing of the contraction, the prognosis is much poorer in point of view of time. In a series of seventy-four observations no case of sudden, immediate and complete reaction of degeneration occurred. It never occurred before three weeks and sometimes took several weeks longer to become complete. This is contrary to Erb's findings. When the electrical reactions of the different branches of the facial nerve vary, the prognosis varies in a similar way. In the rarer types of paralysis the prognosis varies. In bulbar facial palsy the electrical reactions of palsy *a frigore* are found. In central and peduncular types there is no reaction of degeneration. The superior branch of the nerve is unchanged clinically or electrically. The middle and superior branches manifest diminished reaction to faradism and galvanism. In spite of mild electrical disturbance the prognosis is grave. In congenital paralysis of the obstetrical type an excellent prognosis is usually possible. Spontaneous congenital palsy, if accompanied by developmental abnormalities of the temporal bone, has a poor prognosis and, though in other cases the electrical reactions never seem severe, the prognosis is usually very grave.

Small Doses of Irradiation.

G. A. Wagner and Clara Schönhof (*Strahlentherapie, Band* XII, 1927) have investigated the effects of small doses of irradiation by applying one quarter to one tenth of a castration dose to one ovary of women who were to be operated on for other conditions and in whom no pathological conditions in the ovary could be demonstrated. The second ovary was carefully protected. The treatment conditions were: Coolidge tube, 60 to 180 kilovolts, 0·5 millimetres of zinc *plus* 0·5 millimetres of aluminium, 23 centimetres focus skin distance, the percentage depth dose at ten centimetres being fifteen. The patients were operated upon at different intervals after irradiation (one day to several weeks) and histological specimens from each of the ovaries were removed. Thirty-eight cases were investigated. No uniform or typical set of changes could be found which could be regarded as due to a destructive action by the radiation and in no case was there seen histologically any increase in the development of the irradiated ovary, although the impression was frequently obtained that the irradiated ovary contained more follicles at the same stage of ripening than the control ovary. It may be that the histological method is not sufficiently accurate for determining the changes produced by irradiation. It has not been found possible to inhibit the function of a follicular cyst which has already produced metrorrhagia and the resulting uterine hæmorrhages cannot be stopped by mere extirpation of the cyst, but they can be controlled by irradiation with X rays.

British Medical Association News.

SCIENTIFIC.

A meeting of the Victorian Branch of the British Medical Association was held at the Alfred Hospital on September 21, 1927. The meeting took the form of a series of clinical demonstrations by the members of the honorary staff.

Ventriculography.

Dr. J. F. Mackeddie showed a number of very interesting skiagrams illustrating the results of air injections by the thecal route. Cerebro-spinal fluid in amounts up to one hundred cubic centimetres had been removed by lumbar or cistern puncture and an equal quantity of air injected. In about 60% of cases the air had entered the ventricular system, whilst in the remainder it had passed into the subarachnoid space on the surface of the brain. In one patient with hemianopia and general signs of cerebral tumour the air had passed into only one lateral ventricle, the posterior horn of which had not been well outlined, thus indicating the probable presence of a tumour in the corresponding occipital lobe. A decompression had been performed over this region and a hard non-pulsating area of cerebral cortex exposed. The patient had died several days later, but no autopsy had been performed.

In another patient, suffering from general paralysis of the insane the air had passed into the subarachnoid space over the frontal lobes.

Dr. Mackeddie also showed a number of skiagrams illustrating the use of "Lipiodol" in the diagnosis of lung conditions. He described the technique of cistern puncture and the use of ascending "Lipiodol" in intraspinal diagnosis.

Acromegaly.

Dr. M. D. Silberberg showed a female, aged twenty-seven years, who had felt well until about two years previously when she had complained of indigestion with flatulence and lower abdominal pain one hour after meals. At this time there had been a sudden onset of amenorrhœa which had been complete ever since. About eighteen months previously she had noticed that her hands and feet were getting bigger and she had had to wear larger shoes and gloves. About nine months previously her lower jaw had started to enlarge and was still increasing in size. There had been no headaches. Vision had not changed. She had increased in weight from 56·2 kilograms (10 stone 6 pounds) to 67 kilograms (12 stone 2 pounds). She was somewhat drowsy and tired but had continued at her work as a saleswoman. On examination the hair was coarse and dark. The lower jaw was large with inferior protrusion. The hands and feet were very large with redundancy of skin and soft tissues. The hands were spade shaped. The pubic hirsutes were normal, the axillary hirsutes scanty. The thyreoid gland was small. The skin was not dry. The cardiac apex was 13 centimetres (5¼ inches) from the middle line. The heart sounds were clear. The systolic blood pressure was 130 millimetres and the diastolic 90 millimetres of mercury. The lungs and abdomen manifested nothing abnormal. There was fine nystagmus on looking to either side, slightly rotary on looking to the right. The deep reflexes and sensation were normal. The urine contained no albumin or sugar. X ray examination of the hands and feet had revealed nothing abnormal. A skiagram of the skull had revealed a very large *sella turcica*. The breasts were atrophic. Pelvic examination had revealed no abnormality.

Mickulicz Disease Associated with Hepatomegaly Splenomegaly and Jaundice.

Dr. Silberberg's next patient was a female, aged thirty-seven years, who four years previously had noticed swellings over the upper eyelids. Examination at that time had revealed enlargement of the lachrymal, submaxillary and sublingual glands, but not of the parotids. No involvement of lymphatic glands had been present. Blood examination had revealed a mild secondary anæmia and normal differential percentages. Subsequent blood examinations on several occasions had revealed no further abnormality. About twelve months previously enlargement of the spleen to about four centimetres (1·5 inches) below the costal margin on deep inspiration had been detected. The patient had had one deep X ray therapy application over the spleen. Shortly afterwards jaundice had developed and had persisted ever since, but at the time of presentation was less intense than some months previously. The liver had enlarged to about four fingers' breadth below the costal margin. There had been considerable loss of weight and much pruritus from the jaundice.

Dextrocardia and Complete Transposition of the Viscera.

Dr. Silberberg's last patient was a female, aged thirty-five years, who had known since childhood that her heart was on the right side because she was conscious of the heart beat there. Latterly she had complained of palpitation and dyspnœa on exertion. On examination the cardiac apex was in the fifth right intercostal space nine centimetres (three and a half inches) from the middle line. The heart sounds were clear. The liver dulness was on the left side and the stomach resonance on the right. The electrocardiogram manifested the usual characteristic of inversion of all peaks in Lead one.

Electrocardiography.

Dr. Silberberg also gave a lantern demonstration of a number of interesting electrocardiograms.

Treatment of Fractures.

Mr. John Kennedy showed a number of patients and skiagrams illustrating the results of treatment of fractures of the tibia, fibula, humerus and carpal bones. Eight patients who had suffered from fracture of the navicular bone, were exhibited. In these the treatment adopted had been rest on a splint for three weeks with the wrist extended, followed by three weeks' massage. In about three months' time full work had been resumed.

Demonstration of Pyelograms.

Mr. Kennedy also showed a number of pyelograms illustrating the appearances seen in hydronephrosis, double ureter, ureteral and renal stones and a retroperitoneal sarcoma infiltrating the kidney. The retroperitoneal sarcoma had been apparently cured by radium and X ray therapy.

Multiple Osteomata.

Mr. Kennedy also exhibited a patient with multiple osteomata and a tumour in the upper third of the fibula, a skiagram of which suggested the diagnosis of enchondroma. An opinion with regard to diagnosis and treatment was invited.

Splints.

Mr. Kennedy also demonstrated a method of making a well fitting support in cases of painful flat foot.

Thyreoid Diseases.

Dr. Walter Summons showed a female patient, aged forty-four years, married and with two healthy children. She had had exophthalmos and nervousness for years prior to a goitre operation five years previously, when she had been told that the thyreoid gland had been completely removed. After this her health had improved and she had had no treatment until March 31, 1927, when she had been admitted to the out patient department complaining of headaches, nervousness, sleeplessness and flushes. For the previous two years the interval between the menstrual periods had varied from three weeks to three months and she had always lost profusely. On examination there had been considerable exophthalmos and von Graefe's, Stellwag's and Moebius's signs had all been present. There had been no tremor, tachycardia or thyreoid enlargement. A complete physical examination yielded no evidence of other abnormality. Thyreoid extract 30 milligrammes (half a grain) twice daily had been given for a fortnight

and then in addition Lugol's solution 0·12 mil (two minims) three times a day. On May 12, 1927 the thyreoid extract had been omitted. She had then complained of vertigo and of pain in the eyes and had had some tremor and tachycardia. On June 27, 1927, the Lugol's solution had been stopped and iron tonics and bromides substituted. The isthmus of the thyreoid could be definitely felt. On August 8, 1927, Lugol's solution 0·6 mil (ten minims) three times a day had been ordered and at this time the basal metabolic rate was +30%. At the time of presentation she was very nervous and emotional and had tachycardia and definite tremor. Removal of the thyreoid isthmus was recommended.

Dr. Summons's second patient was a female aged 46 years, married and with nine children. She had been admitted as an inpatient on August 24, 1927, complaining that sixteen days previously she had had a sudden attack of dyspnœa and had brought up blood stained sputum. The attending medical practitioner had made a diagnosis of pulmonary œdema. In the previous two years she had had three attacks of sudden dyspnœa and in the last twelve months had had dyspnœa and swelling of the legs on exertion. At the time of her admission she had also complained of headache, anorexia and nervousness. On examination she had been thin, tremulous and sweated easily. The pulse rate had varied up to 180 in the minute. The cardiac apex had been in the fifth intercostal space, eleven centimetres (four and a half inches) from the mid line and the impulse heaving and diffuse. In the mitral area there had been a loud systolic bruit. There had been no right cardiac dulness. Examination of the lungs, abdomen, nervous system, blood and *fundi oculi* had revealed nothing abnormal. No septic focus had been detected. The thyreoid gland had not been enlarged. The basal metabolic rate had been 20%. An electrocardiogram had revealed a tachycardia suggesting hyperthyreoidism. On September 6, 1927, Lugol's solution 0·12 mil (two minims) three times a day had been ordered and on September 9, 1927, had been increased to 0·6 mil (ten minims) three times a day. On September 9, 1927, the tremor, tachycardia and dyspnœa had all been aggravated and the temperature had been 38·9°C. (102°F.) and had remained so for three days. The Lugol's solution had been withdrawn. On September 17, 1927, thyreoid extract 30 milligrammes (half a grain) twice daily had been given and on September 19, 1927, she had been much easier. The consensus of opinion was that removal of a portion of the thyreoid was advisable.

Friedreich's Ataxia.

DR. J. F. CHAMBERS showed a female patient, aged fifteen years, who was the second of seven children. She had been a normal child until fifteen months before when she had become ill with general malaise and vomiting which had lasted fourteen days and had kept her in bed for a short period. Her mother had noticed that when she got up she was weak and unsteady on her legs and clumsy in all her movements. She had not since walked unaided, although the condition had not appreciably progressed.

On examination there had been slight spasticity, absent tendon reflexes and gross ataxia with intention tremor in all limbs, especially the lower. The trunk movements had also been affected. The superficial abdominal reflexes had been present. There had also been scoliosis, nystagmus and slight *pes cavus*. There had been no affection of the speech, cranial nerves, sphincters or mentality. The blood had failed to react to the Wassermann test on two occasions.

Dr. Chambers pointed out that the phenomena seen in the patient presented were those usually seen in Friedreich's disease except for two unusual features, namely, the apparently sudden onset and the absence of any hereditary or familial association. Several members favoured the institution of antisyphilitic treatment.

Osteitis Deformans.

MR. E. T. CATO showed seven patients suffering from *osteitis deformans*, all of whom had been admitted to hospital complaining of symptoms due to conditions other than those associated with this desiase.

The first was a male, aged forty-five, who had been a patient at the Alfred Hospital under treatment for a duodenal ulcer. For the previous twelve months he had had slight stiffness in the back and during the last three months pain in the back and left leg. A skiagram had revealed changes typical of *osteitis deformans* in both femora.

The second patient was a male, aged fifty-six years. On September 7, 1927, he had attended the out patient department complaining of hæmaturia. Cystoscopic examination had shown that both ureteric orifices were normal and contracted every fifteen seconds. The efflux from the right ureteric orifice was not clear and above it there was a small reddened area in the bladder mucosa. The patient stated that for the previous eight years he had noticed that his legs were becoming more and more bowed and he had suffered a good deal with bronchitis. On examination both tibiæ were thickened and considerable anterior bowing was present. The blood had failed to react to the Wassermann test. The radiologist had reported the presence of changes typical of *osteitis deformans* in both tibiæ, pelvic girdle and lumbar spine, the latter also showing osteoarthritic lipping. In the pelvis calcified arteries were visible and what were regarded as calcifying glands (sickle shaped lower margin) were seen below each sacro-iliac region. Over the right kidney region there was a smeary shadow, just below the centre and not sharply outlined as a calculus usually was. It was regarded as possibly being a soft renal calculus. Calcification was present in the pineal gland and a faint area of calcification was seen above the pituitary fossa. The femora manifested broadening and density of the cortex and narrowing of the medullary canal with poor bone detail. Soft density of the vertebræ with loss of bone detail with lipping and soft looking ossification of the intervertebral ligaments in the dorsal and upper lumbar regions were also present. Skiagrams of the lower part of the lumbar region had not been taken.

The third patient was a male, aged seventy years, who had been admitted to hospital with a fracture of the left tibia and fibula, the result of a car accident. Fifteen years previously, while running in a race, the right plantaris tendon had been ruptured. About two years later he had noticed slight aching in the right leg and stiffness in the right knee joint. The aching had been very slight and had not worried him very much. The right knee had gradually become stiff and at the time of presentation could be flexed only about 10°. He had very rarely had headaches and felt very well. There had been no pain in the back, arm or leg. The blood had failed to react to the Wassermann test. X ray examination had revealed changes typical of *osteitis deformans* in the lower end of the femur and especially in the upper end of the tibia and fibula. There was bony ankylosis in the upper tibio-fibular articulation.

The fourth was a male, aged fifty-one years, who for the previous ten years had been suffering from pulmonary tuberculosis with loss of weight and hæmoptyses. On September 9, 1926, he had complained of aching pain in the left femur and a limp which had been troubling him for two years. The blood had failed to react to the Wassermann test. Skiagrams had revealed typical changes of *osteitis deformans* in the skull, parts of the spine, left femur and pelvis and also definite *coxa vara*.

The fifth was a male, aged seventy-two years. For the past ten years he had suffered from cough and chronic bronchitis, for which he had been treated in the outpatient department. For the previous sixteen years he had noticed pains in the legs and stiffness in the knee joints. His head had been increasing in size for many years. When thirty years of age he had been 168 centimetres (five feet six inches) in height and at the time of presentation was under 122 centimetres (four feet). On examination there were definite kyphosis and bowing of the tibiæ and fibulæ especially on the left side. This was so pronounced that he walked with a scissor gait. The blood had failed to react to the Wassermann test. Skiagrams had revealed changes typical of *osteitis deformans* in the skull, spine, femora, tibiæ and fibulæ.

Of the remaining patients with *osteitis deformans* shown by Mr. Cato one had been admitted with a fracture of the

right femur, resulting from a car accident and another with a strangulated inguinal hernia.

Investigation and Surgical Treatment of Sterility.

MR. ROBERT FOWLER, DR. R. D. AITCHISON and DR. C. W. NYE gave a demonstration on the investigation and surgical treatment of sterility.

An introductory lecture, illustrated with lantern slides, was given illustrating Rubin's method of inflating the Fallopian tubes and the technique of the sperm test. Slides illustrating the successive stages of Tuffier's operation of transplantation of the ovary into the wall of the uterus in cases of obstruction or absence of the Fallopian tubes and the method of injecting "Lipiodol" into the uterine cavity and tubes were also shown. The second part of the demonstration comprised a practical explanation of the use of Rubin's apparatus and the method of injecting "Lipiodol" into the uterine cavity. A number of very interesting salpingo-uterograms were also exhibited illustrating the appearances seen in normal and in various types of obstructed tubes.

Urinary Stasis of Pregnancy.

DR. CARL WOOD showed a number of pyelograms illustrating dilatation of the ureters and renal pelves in cases of pregnancy without pyelitis.

Radiology.

DR. C. E. DENNIS exhibited a number of skiagrams illustrating the appearances seen in the late stages of Perthes's disease, Schlatter's disease, cardiospasm, a cerebral cyst, fibrocystic disease of the femur, gastric polyposis, a probable calcified aneurysm of the base of the brain and many other conditions.

Myeloma of the Tibia.

MR. H. C. COLVILLE showed a girl, aged ten, who had been admitted to hospital complaining of a swelling below the right knee. A skiagram had revealed a cystic condition of the head of the right tibia. An incision had been made into the cyst and a portion of the lining removed for pathological examination; this had revealed the typical structure of a myeloma. Several applications of deep X ray therapy had been given, but in spite of this the swelling had increased enormously in size. The thinned out anterior wall of the cyst had been removed and the cavity thoroughly curetted; a sliding bone graft had been cut from the tibial shaft distal to the involved portion and fixed so as to bridge the gap in the head of the bone. At the time of presentation there did not appear to be any recurrence of the growth and skiagrams suggested that some new bone formation had taken place. Unfortunately a small area of thinned-out skin overlying the tumour had sloughed after the operation, exposing part of the underlying bone graft. Mr. Colville pointed out that the immediate problem was to obtain healing of the raw area, while more remotely the question arose as to the possibility of restoring the tibia to a weight bearing condition.

Torek's Operation for Undescended Testis.

Mr. Colville also showed two patients illustrating Torek's operation for undescended testis. He said that in this procedure the inguinal canal was opened and the testis mobilized by dividing all the adhesions to the *vas* and spermatic vessels; at the same time the hernial sac, if present, was dealt with. Incisions were then made in the wall of the scrotum and the skin and subcutaneous tissues of the adjacent inner aspect of the thigh and the testis were brought down through the scrotum and sutured to the exposed *fascia lata* of the thigh; the edges of the wound in the scrotum were then sutured to those of the wound in the thigh. At a second operation some months later the scrotum was freed from its attachment to the thigh and the testis from the *fascia lata*. The testis was then replaced in the scrotum and the thigh and scrotal wounds sutured separately. One of the patients shown had had the first stage completed, while another had had both stages done. In the latter the testis could be felt lying normally in the scrotum.

Congenital Dislocation of the Hip Joint.

MR. COLVILLE also showed three girls, aged two and a half, three and five years respectively, who had been shown at the corresponding meeting in 1926 while undergoing treatment for congenital dislocation of the hip joint. They were shown again as illustrations of the end result of conservative treatment. In each case, the child walked without limp and skiagrams showed the femoral head to be securely in the acetabulum.

Pernicious Anæmia Under Treatment by Liver Feeding.

DR. J. P. MAJOR presented a female patient, aged fifty-four years, who had been failing in health for the previous seven years. During the last two months she had been confined to bed because of weakness. She had also complained of sensations of numbness and tingling in the extremities, especially the legs. She had lost a good deal of weight.

On examination she had been considerably emaciated. Signs of subacute combined degeneration of the cord had been present. A fractional gastric test meal had shown complete achlorhydria. An examination of the blood had revealed:

Red blood corpuscles, per cubic millimetre	1,310,000
Hæmoglobin	40%
Colour index	1·1

In a stained film anisocytosis and poikilocytosis, with many normoblasts, a few megaloblasts and some polychromatophilia and punctate basophilia, had been seen.

On August 25, 1927, liver feeding had been instituted. Three hundred grammes (ten ounces) of fried liver, minced and mixed with vegetables, had been given every day. Dilute hydrochloric acid four mils (one fluid drachm) three times a day had been administered. There had been no dietetic restrictions and no arsenic had been given.

On September 19, 1927, a blood examination had yielded the following results:

Red blood corpuscles, per cubic millimetre	2,060,000
Hæmoglobin	80%
Colour index	1·9

Stained films had manifested some poikilocytosis and anisocytosis, but not nearly so pronounced as formerly, no nucleated red cells had been seen, even after prolonged search and no polychromatophilia or punctate basophilia.

Radiotherapy.

DR. A. H. THWAITES showed twenty patients illustrating results obtained by radiotherapy.

The first of these was a woman, aged thirty-six years, who had been seen for the first time four and a half months previously and who complained of failing vision for the previous six months with occasional severe headaches and attacks of vomiting and kiddiness. Amenorrhœa of several months' standing had been present. Ophthalmoscopic examination by Dr. Ringland Anderson had revealed bitemporal hemianopsia. X ray examination had revealed marked irregular enlargement of the pituitary fossa suggestive of pituitary tumour. Radiotherapy by X rays of short wave length had been commenced on May 17, 1927. At the time of demonstration the patient felt well in every way. The eyesight was practically normal. No headaches, vomiting or giddiness had occurred for the previous two months.

The second patient was a young man of twenty-four years, suffering from tuberculous glands in the left side of the neck of some months' standing. At operation on April 20, 1927, the enlarged glands had been removed. Examination of the section had revealed the presence of tubercle bacilli. Swelling and discharge had subsequently recurred in June, 1927. He had then been referred for radiotherpay. Radiotherapy by X rays of short wave length had been commenced on July 10, 1927. After two treatments all swelling had subsided and the sinus had closed. At the time of demonstration the parts were apparently quite normal, except for the scar due to the operation of excision.

The third patient exhibited was a man, aged fifty years, who had suffered from severe exophthalmic goitre for

eighteen months. There had been definite thyreoid enlargement, chiefly of the right lobe, weakness, tremor, rapid pulse, loss of weight, exophthalmos, high basal metabolism. The patient had been very ill and nervous and operation had been contraindicated at the time. Radiotherapy by X rays of short wave length had been commenced on May 27, 1926. The patient had improved continuously. Treatments had been given at short intervals at first, but later on intervals had been greatly lengthened. He had been discharged on June 12, 1927, when he felt very well in every way, had gained 12·6 kilograms (two stone) in weight, the pulse rate was normal, the circumference of the neck had been reduced by 9·3 centimetres (three and three quarter inches). No tremor or nervousness had been present. He had remained well and in full work until a few weeks previously when he had suffered from bronchitis followed by pneumonia. This had led to a slight exacerbation of symptoms for which a further treatment would be given.

The next patient was a man, aged sixty-two years, with a large hard diffuse enlargement of the prostate. Micturition had been painful, difficult and frequent for some months. The patient had passed urine seven or eight times a night. Three treatments with moderately massive doses of X rays of short wave length had been given. At the time of demonstration micturition was much freer and easier, it was painless and did not occur more than twice during the night. Prostatic enlargement was already reduced by one half.

The next three patients exhibited had all suffered from mixed tumours of the parotid. Two of them had had recurrences after excisions and the condition of the third had been regarded as inoperable when he first presented himself. One had been treated by radium needles embedded on September 6, 1926, for four days and had had no sign of further recurrence. The second, treated on March 10, 1926, had had no recurrence and the third who had had a huge rapidly-growing primary tumour extending from the right temporal region to the clavicle, had had many radium needles embedded on June 8, 1927, for one week. Following upon this treatment there had been rapid and continuous reduction of all parts of the tumour mass, till at the time of demonstration reduction was practically complete.

A woman, aged sixty-two years, was then shown who had had a carcinoma of the right submaxillary gland treated by operation on November 2, 1925. When referred for radiotherapy some weeks after operation some induration and one definite hard nodule had been palpable. Radium treatment had been given by cross-fire and by using only the γ rays. One month later induration and nodule had disappeared. No recurrence had taken place.

Dr. Thwaites's next patient was a man, aged fifty-six years, who had been referred on October 14, 1925, with a large inoperable epithelioma of the lower lip extending on to the gum, with a secondary mass in the submental region about the size of a walnut and firmly fixed to the mandible on both sides. The diagnosis had been confirmed by microscopical examination. On October 20, 1925, radium needles had been embedded in both primary and secondary tumours for eight days. The adjacent cervical lymphatic gland had also been treated prophylactically by γ rays. At the end of eight weeks there had been no evidence of either primary or secondary growth. At the time of demonstration there was no sign of recurrence at either site, the lip was smooth, soft and freely mobile.

Another patient was then shown who had been referred on July 4, 1927, with a huge, fungating, ulcerating, bleeding epithelioma occupying the whole of the lower lip and extending far down the chin externally and on to the gum surface internally. Radium treatment had been carried out along the lines of the previous case on June 9, 1927. At the time of demonstration there was no evidence of malignant tissue in any part. The ulcerating area had completely healed.

A man, aged sixty, was shown in this group. He had been referred on May 19, 1927, with an extensive squamous-celled carcinoma of the floor of the mouth, involving almost the whole of the right lower gum and with a large fixed secondary mass in the right submaxillary lymph gland. Similar radium treatment was carried out on May 26, 1927. At the time of demonstration the whole mass had cleared up, except a small area on the gum which would receive further treatment later if necessary.

Amongst the patients with sarcoma was a woman, aged fifty-eight years, who had been operated upon on March 21, 1927, for an ovarian tumour. The pathologist had reported the growth to be a sarcoma. The lumbar glands had been found to be involved, but had not been removed. On May 1, 1927, she had been referred for radiotherapy and had then complained of pelvic pains, she had felt ill generally and was losing weight and strength. Treatment by X rays of short wave length had been adopted with immediate improvement. Pain had disappeared and the patient soon felt well and strong and gained weight from forty-nine to fifty-three kilograms (seven stone eleven pounds to eight stone six pounds). At the time of demonstration she had no pain and felt well in every way, her weight was stationary and no tumour was palpable.

Three patients suffering from osteogenic sarcoma were shown. One of these, a little girl, aged six years, had been operated upon by Mr. Colville on September 29, 1926, when complete removal had been found to be impossible as the growth penetrated the *dura mater*. Portion had been removed for examination and a report of small spindle-celled osteosarcoma had been received. On October 22, 1926, radiotherapy by X rays of short wave length had been commenced. At the time of demonstration there was no clinical or radiological evidence of recurrence. The child looked well and seemed to be in perfect health.

The osteogenic sarcomata of the other two patients occurred in the right scapula and the right clavicle respectively. Diagnosis had been arrived at by skiagraphs and microscopical examination. X rays of short wave length had been employed and in both cases pain and disability had rapidly disappeared, reduction in the sizes of the tumours had occurred and skiagraphic examinations at intervals had revealed no further sign of active growth. At the time of demonstration there was no clinical or radiological evidence of recurrence.

A little boy, aged eight years, was also presented who had been noticed on June 8, 1927, to be suffering from a tumour about the size of an almond at the lower and inner aspect of the right orbit. This had begun as a small lump following a blow upon the eye three weeks previously and had increased rapidly in size. It had been regarded by Dr. J. R. Anderson as undoubtedly sarcomatous and as inoperable. It had been thought inadvisable to submit it to microscopical examination. Radium needles had been embedded for four days following upon which the tumour had completely disappeared. At the time of demonstration there was no sign of recurrence and thanks to the skill and attention of Dr. Anderson the eyeball and lids had also been saved with good function.

Two interesting cases of metastatic carcinomata in skull bones were shown. The primary tumours had occurred in the breast. Both patients had been referred in May, 1926, with very large tumours (one the size of a small cantaloupe). Both diagnoses had been verified by sections and both patients had been treated by embedding radium needles, with subsequent complete disappearance of the tumours. At the time of demonstration there was no clinical or skiagraphic evidence of tumours.

Dr. Thwaites's next patient was a woman, aged sixty-nine years, who had had a massive carcinoma of the left breast, but no palpable glandular secondary deposits. She had been referred by Mr. Trumble who considered operation contraindicated on account of the age and enfeeblement of the patient. On September 15, 1926 radium needles had been embedded for one week. Following upon this treatment gradual reduction of the tumour had occurred and this had continued until it disappeared. At the time of demonstration there was no evidence of recurrence.

The last patient shown had suffered from a large tumour of the right tonsil extending down the anterior pillar of the fauces to the tongue. He had been referred on October 7, 1926, by Mr. Trinca. On October 10, 1926, radium needles had been embedded for five days. By January 13, 1927, there had been no evidence of the primary but an adjacent cervical lymph gland had been palpably enlarged. This had been irradiated and had subsided. At the time of demonstration there was no evidence of either primary or secondary growth.

Columnar Carcinoma of the Stomach with Recurrence in the Transverse Colon.

MR. A. J. TRINCA showed a female patient, aged seventy-seven years, who had been admitted to hospital in March, 1926, complaining of indigestion with epigastric discomfort and loss of weight and strength for more than twelve months. Six weeks prior to admission vomiting had commenced and soon became constant, with finally immediate regurgitation of any food swallowed.

On examination she had been extremely wasted and cachectic with a large hard irregularly oval mass in the epigastrium, dull on percussion and somewhat movable. This tumour had been felt by her medical attendant some months before and had then and subsequently been pronounced inoperable by several medical men. X ray examination had revealed an obstructing pyloric carcinoma. The gastric contents had manifested complete achlorhydria.

The abdomen had been opened under local anæsthesia, her condition being considered too low for preliminary morphine and general anæsthesia. A large growth involving the whole of the *pars pylorica* and adjacent part of the body of the stomach had been found, adherent posteriorly and below to the transverse colon. The liver had apparently been free from involvement and no enlarged glands had been seen or felt. A partial gastrectomy (Pólya) had been performed, the greatest care being taken with hæmostasis. Difficulty had been experienced in dissecting the mass from the pancreas and below a small portion of the adherent wall of the transverse colon had been resected. A microscopical section of the mass had shown it to be a simple columnar adeno-carcinoma. After operation the patient had gained weight continuously, a normal appetite had returned and she had been well until July, 1927, when she commenced to lose weight slightly and had lost her appetite. On examination a small tumour had been felt just above and to the right of the umbilicus. At operation a tumour the size of a plum had been found on the superior border of the transverse colon some inches of which had been resected. Microscopical examination had revealed the same type of growth as in the original mass.

Columnar Carcinoma of the Transverse Colon Involving the Greater Curvature of the Stomach.

Mr. Trinca's second patient was a female, aged seventy years, who had been admitted to hospital on November 29, 1925, complaining of asthenia and loss of weight for the previous eighteen months during which time she had lost nineteen kilograms (three stone). There had been no gastric or intestinal symptoms.

On examination there had been slight tenderness and rigidity in the left hypochondrium and around the umbilicus, with a large palpable mass to the outer side of the left rectus just above the umbilicus and moving slightly with respiration.

At operation a large carcinoma had been found near the centre of the transverse colon invading the omentum and outer coats of the stomach on its greater curvature. There had been no apparent involvement of the glands or liver. Some inches of the colon together with the involved omentum and stomach had been removed *en masse*, the opening in the stomach closed and an end to end anastomosis of the colon performed. Microscopical examination of the mass had shown it to be a columnar carcinoma. The patient had made an uneventful recovery and had been discharged on November, 1925, having gained thirty-four kilograms (five stone four pounds) in weight.

Dermatological Conditions.

DR. S. W. SHIELDS showed a number of patients with interesting dermatological conditions included amongst which were the following:

1. *Granuloma annulare* in a female, aged twenty-four years, with a single lesion showing definite ringed eruption of closely grouped nodules on the back of the left hand, which had been present for eighteen months.

2. Two cases of *lupus erythematosus* of the discoid variety, both appearing on the face, with chronic patches having red elevated borders and depressed paler and scaly centres. One patient was a male, aged thirty-four years, with no tuberculous history or septic focus discoverable; he had had the lesions for about twelve months. The other was a female, aged thirty-eight years, who had had the condition for ten months. There was no history of tuberculosis, but of septic tonsils which it was proposed to remove.

3. *Lupus vulgaris* in a girl, aged seven years, who had emigrated from Scotland. There had been on the inner side of the left thigh a patch of *lupus vulgaris* about 7·5 centimetres in diameter showing typical apple jelly nodules which had been present for about four years.

4. Localized hyperidrosis in a boy, aged fifteen years. There was a patch above the left wrist about 5·5 centimetres (two and a quarter inches) in diameter and excessive and frequent sweating occurred following slight local injury at the age of three years.

Anæsthetics.

DR. G. L. LILLIES showed a number of anæsthetic charts illustrating the prognostic value of Moot's rule prior to operation and McKisson's rule during anæsthesia.

He pointed out that Moot's rule for evaluating cardiac reserve stated that:

$$\frac{\text{Pulse pressure (in millimetres of mercury)} \times 100}{\text{Diastolic pressure (in millimetres of mercury)}}$$

was normal between 40 and 60. According to this rule patients could be divided into three classes: (i) Class A—Safety, between 40 and 60; (ii) Class B—Probably operable, between 25 and 75; (iii) Class C—Probably inoperable outside these figures.

McKisson's rule stated that after half an hour of sustained low blood pressure and rapid pulse almost every patient succumbed either shortly after or within three days of surgical shock and heart exhaustion. He recognized three groups of circulatory depression:

1. Safe: characterized by 10% to 15% increase in pulse rate without fall in pressure or 10% to 15% fall in pressure without change in pulse rate.

2. Dangerous: characterized by 10% to 15% increase of pulse rate with 15% to 25% decrease in blood pressure or with a sustained pulse pressure of less than twenty.

3. Fatal: characterized by progressively increasing pulse rate above 100 with progressively falling blood pressure of 80 or less systolic and 20 or less pulse pressure for more than twenty minutes.

Gastric Diseases.

DR. L. A. LOVE and MR. ST. C. STEUART showed a number of skiagrams illustrating the diagnosis of gastric diseases.

Unusual Glaucoma.

DR. J. RINGLAND ANDERSON showed a series of patients in whom the use of atropine was indicated and for comparison five patients with glaucoma in whom the instillation of a mydriatic would produce disastrous results. One of these was a woman, aged thirty, with microphthalmos. Nystagmus was present, each anterior chamber was shallow and on examination the inferior temporal third of each vitreous was found to be replaced by a solid white mass. Over this vessels coursed irregularly. The discs were irregular and scarcely recognizable. A brother and a sister presented similar appearances. Three years previously the tension had risen in each eye. Eserine had relieved the pain, but the tension had increased again. Each eye had been trephined and though normal tension was maintained, the white masses appeared to extend. The vision in the right eye was still 6/60 as at the first examination, but the left was failing as a result of lens opacities. No further treatment was advocated and it was feared that this patient would follow her two relatives to the Blind Asylum.

Bilateral Occlusion of the Central Retinal Artery.

Nine months previously this patient, a man aged thirty-three years, had come into hospital with symptoms suggesting a gastric ulcer. Mr. Buchanan at operation had

diagnosed a gumma of the stomach wall. Three months later the left eye had suddenly become blind. This loss had been preceded by a transient failure of vision. On examination Dr. Anderson had found the picture characteristic of embolism of the central retinal artery. The blood in the veins had been segmented and had moved in jerks. It had been possible to reverse its course by pressure. The fundus had been pale except for the cherry-red macula. The eye had been massaged. Nitrites had been administered, but very little sight had returned. A week later vision had failed in the other eye. A similar picture had been found. After trying massage and nitrites without success he had drained off the aqueous. At the time of the meeting vision was very reduced, though considerably better in this eye than the former. The response to the Wassermann test was "+ +" and on specific treatment the patient had put on weight and improved in health. As there was evidence of vascular degeneration, the diagnosis was made of endarteritis with occlusion of each central retinal artery. Each disc was atrophic with some new vessels visible, the retinal vessels especially the arteries were very reduced in size, the central area of each fundus manifested unusual reflexes. Red-free light revealed white lines along the vessels.

Asthma.

DR. CHARLES SUTHERLAND showed three patients to demonstrate different types of asthma which had responded to different forms of treatment.

The first was a male, aged fifty-four years, a nightwatchman, who had had asthma for years. Contact with horses or cats had immediately brought on an attack. If he touched his eyes after touching a cat they became swollen and itchy. Dust from mouldy chaff upset him, although clean chaff was harmless. Uncles, grandmother and cousins had asthma. Skin tests yielded good reactions to horse dander and cat fur. Forty other tests had yielded no results. Desensitization with horse dander extract had practically stopped the attacks, although they had recurred lately, but since starting another course of injections the attacks had stopped again.

The second patient, a male, aged forty-seven years, had had asthma since 1917. He had had bronchopneumonia in 1915. He complained that wheezing or coughing was almost continuous. Skin tests had yielded no reactions except for a doubtful reaction to hen feathers. Treatment with this extract had produced no improvement, nor did treatment with vaccines. He had then been given a course of tuberculin treatment with definite improvement in the symptoms. Treatment had started with 0·1 cubic centimetre of 1 in 100,000 old tuberculin and he was having 0·2 cubic centimetre of 1 in 100 old tuberculin.

The third patient had given a good reaction to hen feathers and had done well with desensitization. He had had no attacks for over two months.

Methods of testing for hypersensitiveness were also demonstrated.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Burgess, Thomas Whittley, M.B., Ch.M., 1925 (Univ. Sydney), Coolong Road, Vaucluse.

Downes, George Brownlow, M.B., Ch.M. (Univ Sydney), Brownlow Hill, Camden.

Cardamatis, Constantin John, M.D. 1910 (Univ. Athens), "The Examination prescribed by the Senate of the University of Sydney" (*Medical Practitioners' Act*, 1912-1915; Section 4 (3)), 1927; Challis Avenue, Potts Point.

Raffan, George, M.D., 1913, B.S., 1906, F.R.C.S. 1909 (Univ. Edinburgh), 185 Macquarie Street, Sydney.

Spark, Robin James Hester, M.B., Ch.M., 1926 (Univ. Sydney), Royal North Shore Hospital, St. Leonards.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Mackay, Alan John Grange, M.B., B.S., 1925 (Univ. Melbourne), Toorak Road, Toorak.

Barbour, Charles Stewart, M.B., B.S., 1927 (Univ. Melbourne), Ascot Vale.

Frank, Theophil Johannes Friedrich, M.B., B.S., 1927 (Univ. Melbourne), East Melbourne.

Body, Harold Alfred, M.B., B.S., 1927 (Univ. Melbourne), Elsternwick.

Correspondence.

STANDARDS FOR INFANT FOODS.

SIR: One of the most refreshing recollections of my recent visit to New Zealand is that of being told by Dr. Williams, of Dunedin, that proprietary foods for infants had locally gone altogether out of use. We agreed that this was a good thing. I cannot, therefore, share your solicitude as to the possible results of the proposed new standard for infants' foods. Nor can I agree with some of your arguments against Dr. Sydney Morris's defence of this standard. You ask: "Is there any evidence of fatality resulting from any of the well known brands of infants' foods?" You contend that: "A careful mother will stop an unsuitable food long before it has done irreparable harm." Surely every pædiatrician is familiar with the numerous cases in which mothers have put their infants on these foods, sometimes even taking them off the breast for this purpose and sometimes trying in succession every infants' food on the market with disastrous and sometimes irreparable harm to their infants. Perhaps you will not consider these mothers careful, but they have done their best with the little knowledge or want of knowledge they possess, largely derived from reading misleading advertisements. I cannot agree "that the cow's milk offered for sale throughout Australia is rarely clean or satisfactory as a food for infants." At present in Brisbane we have an excellent supply. But no doubt there are places to which your description applies. For these some form of simple dried milk is a necessity, though unfortunately advertisements of these dried milks are in my opinion doing much harm. But for proprietary milk food mixtures there is no real necessity. Doubtless these mixtures were originally devised with the collaboration of physiologists and clinicians. Money can always command expert advice. They are, I believe, still employed by some practitioners, but this is to me evidence of want of knowledge within our profession.

No doubt it is a difficult problem to fix any standard for these foods, but the new standard appears to me an improvement on the old. If it results in the exclusion of these foods from the market, infant life will benefit. I would not lift my little finger to prevent such a happy result.

Yours, etc.,

A. JEFFERIS TURNER, M.D. (Lond.), D.P.H. (Camb.).

Brisbane,
October 10, 1927.

LOCAL ANÆSTHETICS IN NOSE AND THROAT WORK.

SIR: Recently the reports of the Committees of the American Medical Association on the advantages and disadvantages of the various local anæsthetics in nose and throat work have come to my notice.

While forty-three deaths were reported out of the many thousands of cases of local anæsthesia in the United States of America, the mode of death and the fact that these were in the main due to strong solutions of the more toxic agents, gives me food for thought and not a little apprehension.

To advise a patient and relatives that life is safe as we are not using a general anæsthetic and later then have to report that the patient suddenly died is not a pleasant reflection, certainly only to be reconciled with conscience in the knowledge that every care is taken. One asks, however, is this true of the routine in Sydney. The common practice here is to use cocaine 10% to 20% with up to equal parts of adrenalin 1/1,000 for topical applications and 0·5% to 1% "Novocaine" with and without adrenalin in varying proportions for subcutaneous and submucous injections; patients are anæsthetized sometimes sitting, sometimes lying down. The use of previous analgesia is rare except in large major procedures.

These reports advise a minimum strength and the strict adherence to the least toxic drugs; cocaine mud is condemned and weaker strengths than we commonly apply to the nasal mucosa are reported as quite satisfactory. Adrenalin is shown both in the laboratory and clinically to have a synergic tonic action especially should the solution enter into a vein and especially in thyreo-toxic patients.

The common train of symptoms in fatal cases clinically and in the laboratory is sudden cessation of respiration and pulse, a few convulsions and death in several minutes; such certainly leaves very little time to look for antidotal measures and it seems to me that we risk the loss of life possible to save and perhaps an unpleasant coroner's report in not making part of our local anæsthetic "set-up" the best remedies advised.

Treatment of most avail is:

1. Artificial respiration.
2. Cardiac massage.
3. Intracardiac adrenalin 1/10,000, two cubic centimetres given necessarily with a needle at least three inches long, as the heart recedes deeply from the chest wall in this collapse, such should be ready at hand.
4. Except in minor cases the usual restoratives, subcutaneous or otherwise, are a waste of time, as circulation is either stationary or at a minimum, swallowing is impossible and respiration is nil.
5. For convulsions ether is advised by some up to stage of excitement only and a few have recommended amyl nitrite. If we are to feel that all was done to save life such should be at hand.
6. The horizontal position should be employed in all cases.

My own experience in over one thousand cases has been devoid of more than mild faintness and this in most instances in nervous patients; such I believe is the experience of most and tends perhaps to lull us into a sense of false security, but one must realize that the type which proves fatal is almost instantaneous in its dire result and thus being the type that we wish to avoid, the precautions advised and remedies of most avail should be sought.

My purpose in writing is to endeavour to stimulate some reporting in your columns of poisoning in such cases, fatal or otherwise; I think we would excuse a *nom-de-plume* in this matter as we are mostly reticent to publish unexpected deaths in our practice, yet I feel that warning from others might stimulate all to adopt a routine of safety.

A further point: several deaths have been due to use of wrong solutions—dispenser's or nurse's error; colouring of the solutions of different drugs would obviate this and is a measure to be commended.

Yours, etc.,

DOUGLAS CARRUTHERS, M.B., Ch.M.

223 Macquarie Street, Sydney.
October 11, 1927.

ADVERTISING.

SIR: Is it ethical for medical members of the Rotarian Club to publicly advertise their special callings on the lapels of their evening coats when attending large social gatherings of men and women, such gatherings being given by the Rotary Club. It does seem "infra dig" to see a placard about three inches in diameter so displayed bearing such advertisements as the following: Dr. A., ophthalmologist, Dr. B., radiologist, Dr. C., gynæcologist *et cetera et cetera.*

Yours, etc.,

"ETHICS."

October 10, 1927.

THE COLLEGE OF SURGEONS OF AUSTRALASIA.

SIR: In THE MEDICAL JOURNAL OF AUSTRALIA of this date is a report of the meeting of the Council of the College of Surgeons of Australasia held in Sydney on September 28 and 29.

On page 558 it is recorded, apparently as a resolution passed, that "The Fellows were to be urged to use the title 'Mr.' instead of 'Dr.'."

I hope to refer to another of the reslutions in another letter, but I want here to draw attention to the resoluion jus mentioned.

Up to the time of the meeting, I know Dr. Kenny, as Honorary Secretary, caused letters to be addressed to him as "Dr." Kenny and I know also that Dr. Worrall looked on the "Mister" proposal as ridiculous. Indeed, the report furnished to THE MEDICAL JOURNAL OF AUSTRALIA after the meeting continued to refer to three of the five members present as "Dr." Kenny, "Dr." Worrall, and "Dr." Newland.

Now, if at the meeting the proposal was carried by unanimous agreement, it may be conjectured that some cogent and convincing reasons were brought forward, and that Dr. Worrall did not bring them forward, though he might have been convinced. One may infer that the three Melbourne members, and perhaps the Adelaide member, were in possession of the convincing reasons.

I hope and believe I am open to conviction, but I am old enough and independent enough to want to hear the cogent and convincing reasons. At the present time, the "Mister" proposal seems to have no serious reasons in its favour, and I know some other Fellows here in Sydney think so, too.

I will, therefore, forbear for the present to make any criticism, because I want to hear the reasons first. They might be absolutely convincing. On the other hand, they might not be so cogent.

I am not writing anonymously, and I hope we shall not have an anonymous apologist in reply.

Yours, etc.,

C. E. CORLETTE.

175 Macquarie Street, Sydney.
October 15, 1927.

Sir: The report of the meeting of the Council of the above College held on September 28 and 29 would be read with much interest by many members of the British Medical Association. The ideals of the College cannot fail to win the full approval of all practitioners who have the welfare of the community at heart.

It is with special reference to the effect of the College on medical practice in country towns that I write here. Very little has so far been gleaned in the country as to the working policy of the College and how it will affect those in general practice. Two pieces of information have however recently come to my knowledge. First, that the Victorian Branch of the British Medical Association are not officially aware of the existence of the College and, secondly, that the College will consider applications for admission to Fellowship from those whose practice is 50% surgical.

Probably no paragraph of the report of the meeting of the College Council will excite so much comment as that headed "Propaganda" and stating "It was resolved that an article be written on the College of Surgeons of Australasia for publication in the lay press" *et cetera.* Sir George Syme's article in the lay press will be awaited by all country practitioners with great eagerness, as surgery in the country towns has been a distinct problem in the

past. A medical man in a country town, even though his inclinations and training lie in the direction of medicine as opposed to surgery, finds that surgical work is very often thrust upon him. This is especially so in a town, such as this, which has a public hospital with a daily average of fifty occupied beds. Here emergency surgery is continually coming in both from this town and a surrounding district of up to sixty miles away in some directions. Unquestionably many lives are saved annually by the surgical work of general practitioners acting in an honorary capacity at public hospitals. From personal knowledge of many such practitioners I can commend their disinterested service to the community. If operation is considered necessary, it is frequently advised before the financial position of the patient is discussed and the class of hospital decided. While good work is being done in country centres, no one will deny that the present system is far from perfect.

In this town three out of the five practitioners share the surgery at the public hospital between them and a fourth does some surgical work in his private practice. Thus four out of five men to a certain extent "do their own surgery," to use a phrase that the College of Surgeons would probably like to see abolished.

At the present time the policy of the Charities Board of Victoria is to establish base hospitals in the country at such centres as this and so relieve the present congestion in the metropolis. To make such a scheme workable the only solution is team work in any town where there are more than two practitioners. Team work if carried to its logical limit will necessarily sound the death knell of the family doctor in the larger country towns. Surely such a momentous change in the medical profession should have the earnest consideration of the British Medical Association.

So far one can only conjecture the form that the propaganda of the College of Surgeons in the lay press will take. It is imagined what the laity will be urged to do, if a surgical operation is required, is to seek out a Fellow of the College.

There appear to me to be certain dangers in this which the British Medical Association might well guard their members against. The first is that if Fellowships of the College are to be given to general practitioners or any whose practice is not wholly surgical, the public should be warned that because such a one is a Fellow of the College of Surgeons he is not necessarily a better physician or obstetrician or so forth, but possibly not so well qualified in these branches as his neighbour. With the advent of the College of Surgeons is not the time opportune for the foundation of a College of Physicians of Australasia. A College of Physicians would encourage many practitioners to turn their attention to the various branches of medicine, at present not amenable to surgical treatment. Such a body in Australasia could do much partly perhaps by propaganda in the lay press also to give medicine something of the glamour which surgery at present has in the lay mind. About this glamour there can be no doubt. Successful surgery at present goes a long way in building up a successful general practice. If in a country town one practitioner passed on his operative cases to a colleague who possessed a Fellowship of the College of Surgeons, as things now are, the former's practice would suffer. A point on which the College of Surgeons and the British Medical Association might well confer is what medical cases should be passed on by the surgical practitioner to his colleague who has made a closer study of medicine. One hopes that it will not be long before leading physicians in Australia seek to found a college. Then with the two great branches of the profession on an equal footing, graduates will early learn in many more cases than at present that a choice of life work has to be made.

The second danger that the British Medical Association may well guard its members against is that propaganda in the lay press may undermine the patient's confidence in his doctor. This is a very real danger in towns where there is one legally qualified practitioner and certain quacks either residing or visiting there. Judging by the advertisements in the country press, herbalists and medical electricians are multiplying rapidly in the land and their photographs all convince one of their worldly prosperity. Any propaganda by leaders of the profession which pointed out the possible limitations of the local practitioner, might well help to fill the waiting rooms of these charlatans.

Yours, etc.,

Vernon Davies, D.S.O., M.D. (Melb.).

Wangaratta, Victoria,
October 18, 1927..

Obituary.

JAMES SAMUEL FREDERICK BARNET.

The tragic death of Dr. James Samuel Frederick Barnet on August 29, 1927, as a result of accidental misuse of an electrical apparatus was recorded in our issue of September 10, 1927. The untimely closing of a career which was so full of promise has left a serious gap in the district of Armidale, for in his four years' residence in that town he carved out for himself a peculiar niche in the affections of the people.

The son of Thomas Barnet, Esquire, of Darling Point, Sydney, James Samuel Frederick Barnet was born at Sydney on March 17, 1894. He was educated at Sydney Grammar School and in due course studied medicine at the University of Sydney. At the outbreak of war he was anxious to serve his country; he chafed at the delay imposed by the military authorities and was amongst those whose academic course was curtailed. He qualified in 1918 and immediately became attached to the Military Hospital at Randwick. After leaving Randwick he started practice at Warialda and in 1923 joined Dr. R. B. Austin at Armidale. He entered into the life of the town and served the people in many unobtrusive ways. His work at several of the important schools for which this district is famous was carried out successfully. He endeavoured to apply the principles of preventive medicine to this important branch of his activities and numbers of parents have to thank him for the robust health of their erstwhile delicate children.

At school and at the University he played football and at school he was a prominent member of the rowing club. Of him it may be truly said that he carried his sportsmanship into practice in dealing with his neighbours. The sympathy of the medical profession is extended wholeheartedly to his widow and to his brother, Dr. T. W. Barnet, of Queanbeyan.

Corrigendum.

THE COLLEGE OF SURGEONS OF AUSTRALASIA.

In the record of the meeting of the Council of the College of Surgeons of Australasia published in The Medical Journal of Australia, October 15, 1927, page 558, there is a statement concerning the publication in the lay press of an article on the College. This article will be written and published after having obtained the approval of the members of the Council of the College. Sir George Syme will write the article, but the Council will endorse the statements contained in it.

Medical Matters in Parliament.

MINISTER FOR HEALTH IN NEW SOUTH WALES.

The Premier of New South Wales, Mr. T. R. Bavin, selected his cabinet on October 18, 1927. Dr. Richard Arthur has been elected Minister for Health. We offer him the congratulations of the medical profession on his appointment to this important office.

Books Received.

DEMONSTRATIONS OF PHYSICAL SIGNS IN CLINICAL SURGERY, by Hamilton Bailey, F.R.C.S. (England); 1927. Bristol: John Wright and Sons, Limited. Royal 8vo., pp. 232, with illustrations. Price: 21s. net.

WOMAN (WIE BIST DU WEIB?): A TREATISE ON THE ANATOMY, PHYSIOLOGY, PSYCHOLOGY AND SEXUAL LIFE OF WOMAN, WITH AN APPENDIX ON PROSTITUTION, by Dr. Bernhard A. Bauer, Translated by E. S. Jerdan, B.A., LL.B. and Norman Haire, Ch.M., M.B.; 1927. London: Jonathan Cape Limited; Sydney: Angus and Robertson, Limited. Royal 8vo., pp. 413. Price: 25s. net.

MATERIA MEDICA FOR NURSES, by A. Muir Crawford, M.D., F.R.F.P.S.G.; 1927. London: H. K. Lewis and Company Limited. Crown 8vo., pp. 94. Price 3s. 6d. net.

Diary for the Month.

Nov. 1.—Tasmanian Branch, B.M.A.: Council.
Nov. 2.—Western Australian Branch, B.M.A.: Council.
Nov. 3.—Section of Orthopædics, New South Wales Branch, B.M.A.
Nov. 4.—Queensland Branch, B.M.A.: Branch.
Nov. 8.—Tasmanian Branch, B.M.A.: Branch.
Nov. 8.—New South Wales Branch, B.M.A.: Ethics Committee.
Nov. 9.—Victorian Branch, B.M.A.: Branch, last date of nominations for Council.
Nov. 9.—Central Northern Medical Association, New South Wales.
Nov. 10.—Victorian Branch, B.M.A.: Council.
Nov. 10.—South Australian Branch, B.M.A.: Council.
Nov. 10.—New South Wales Branch, B.M.A.: Clinical Meeting.
Nov. 11.—Queensland Branch, B.M.A.: Council.
Nov. 15.—Tasmanian Branch, B.M.A.: Council.
Nov. 15.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
Nov. 16.—Western Australian Branch, B.M.A.: Branch.
Nov. 16.—Section of Obstetrics and Gynæcology, New South Wales Branch, B.M.A.
Nov. 17.—Section of Neurology and Psychiatry, New South Wales Branch, B.M.A.
Nov. 21.—New South Wales Branch, B.M.A.: Organization and Science Committee.

Medical Appointments.

Dr. Edward A. Daley (B.M.A.) has been appointed Public Vaccinator at Carnegie, Victoria.

* * * *

Dr. Robert B. Loosli (B.M.A.) has been appointed Public Vaccinator at Hopetoun, Victoria.

* * * *

Dr. Edward Dennis Ahern (B.M.A.) has been appointed a Member of the Queensland Medical Board.

* * * *

Dr. Luther Morris (B.M.A.) has been appointed Government Medical Officer at Gympie, Queensland.

* * * *

Dr. Roy Halford Stevens (B.M.A.) has been appointed Certifying Medical Practitioner at Bacchus Marsh, Victoria.

* * * *

Dr. Harry Mander North (B.M.A.) has been appointed Medical Superintendent, Department of Medical Hospitals, New South Wales.

* * * *

Dr. John Coffey (B.M.A.) has been appointed Deputy Commissioner of Public Health and Deputy Inspector, School of Anatomy, Brisbane, Queensland.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xx.

COMMONWEALTH DEPARTMENT OF HEALTH: Medical Officer.
GOVERNMENT OF VICTORIA: Medical Superintendent.
MEDICAL DEPARTMENT, PERTH, WESTERN AUSTRALIA: Resident Medical Officer.
ROYAL PRINCE ALFRED HOSPITAL, SYDNEY: Honorary Surgeon.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Booleroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to positions at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

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